



ART ON THE
WING



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BRITISH, AMERICAN, AND CANADIAN ILLUSTRATED BIRD BOOKS

FROM THE EIGHTEENTH TO THE TWENTIETH CENTURY

BY JOAN WINEARLS

AN EXHIBITION IN THE

THOMAS FISHER RARE BOOK LIBRARY

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The allegorical frontispiece from George Edward's A Natural History of Birds (1747) vol. I Plate 18

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Colour pattern for a tanager with William Swainson's notes for his Ornithological Drawings (1834-6).

FOREWORD

AT THE END of the twentieth century, we in North America tend to take for granted a tremendous interest in natural history, wildlife and the wilderness. Ecology, the environment, and conservation are all parts of our daily lives. Indicative of this interest is the wide selection of books, filled with extraordinary illustrations and photographs, depicting our native birds. Field guides by the million have been sold, and bird watching has become the most popular hobby in Canada. It has not always been thus.

From the beginnings of the scientific movement in the 1500s through the Victorian era to the middle of this century, the interest — what little there was — in natural history was largely confined to the urban, the educated and the wealthy. Even among the privileged, the thought of conservation traditionally persisted as an alien concept. Until the advent of the modern bird-watcher and his quite exceptional achievement of total respectability, concern for the natural world was usually eyed with suspicion. Throughout the centuries, however, Man's growing knowledge of the animal kingdom was reflected in the hundreds of books that dealt with specific species or areas, or general encyclopaedic works that covered entire animal kingdoms. Birds have always held a particular fascination because of their beauty, and perhaps because of the freedom that they were felt to embody. Not surprisingly, therefore, bird books have figured prominently in the history of science. However, until modern publishing techniques permitted mass readership, the cost of books, especially those with hand-coloured illustrations, tended to reserve access for the well-to-do.

This elegant exhibition traces the development over several centuries of bird books that were either published in, or contained birds from the Americas. As knowledge grew, printing and art also evolved, but not always at the same pace. Slowly, art, technology and science came together. As the volumes on display clearly show, it has been a wonderful reconciliation.

David M. Lank, *C.M., F.R.S.A., Montreal*

THE FASCINATION WITH BIRDS that has captured the imagination of human beings goes back to the beginnings of recorded history. To be able to fly has exercised the ingenuity of generations of men and women and has only been partially satisfied by the invention of the aeroplane in the twentieth century. Thus, as a kind of substitute, the depiction of birds, in flight and at rest, has been a regular feature of many illustrated books and manuscripts from medieval times to the present. The earliest printed images of birds in books were monochrome outlines which, although they could be coloured by hand, did not capture the intricate and delicate detail necessary to convey the true tonal qualities of feathers. The most magnificent bird books began to be produced in the early eighteenth century, using copper-plate engraving, and later wood engraving and lithography and it is from this period, extending to the mid-twentieth century, that Joan Winearls has drawn her examples for this exhibition.

Although we have borrowed books and works of art from many generous lenders (who are acknowledged on a separate page) most of the items in this exhibition are taken from the collections of the Thomas Fisher Rare Book Library. This institution has seriously collected in the field of natural history for a long time and our History of Science collection contains many of our most magnificent bird books. The Charles Fothergill collection contains some of this early Canadian naturalist's sketches of birds, part of the small surviving remnant of his doomed work on an universal natural history. The Darwin Collection and the Victorian Natural History Collection, acquired from Richard Freeman and since augmented, both contain ornithological works. The latter is especially notable for its holdings of Philip Henry Gosse, including the rare volume of plates for *Birds of Jamaica*. We also possess the library and papers of James Baillie, for many years the Assistant Curator of Ornithology at the Royal Ontario Museum.

This exhibition provides an opportunity to display some of our artistic treasures to a wide audience of bird lovers and, perhaps, to recapture the historical fascination of the relationship between people and birds.

Richard Landon, *Director, Thomas Fisher Rare Book Library*

INTRODUCTION

WITH THE INCREASING INTEREST in environmental issues, natural history illustration is assuming greater importance in our world, as it assists us in documenting individual species as well as providing records for those that, sadly, we have lost. For these reasons and for the joy birds bring, it has been a great privilege and pleasure to prepare this exhibition on ornithological illustration for the Thomas Fisher Rare Book Library.

The exhibition would not have been possible without the assistance of many people. The staff of the various lending libraries have all been generous with their time as well as with their materials. In Montreal, I would like to thank Eleanor McLean, Librarian of the Blacker-Wood Library of Zoology, McGill University for opening her great collection to me for research, for lending several items and for assisting in many ways. In Toronto, Marie Korey of the Robertson Davies Library at Massey College willingly shared her expertise and collections on Victorian illustration and colour printing. Julia Matthews, Sharon Hick, Arthur Smith and their staff in the Royal Ontario Museum Library have been of great assistance to me for nearly a year as I worked through their important collections. David Kotin and the staff of Special Collections and the Conservation Department of the Toronto Reference Library have readily assisted in making loans of certain important books possible.

David Lank, a Canadian authority on bird art, has been a mentor since I first began my research on bird illustration and has been most generous in giving me the benefits of his research and in many other ways. I would also like to acknowledge Christine Jackson, the noted British researcher on bird art, whose work has greatly assisted me. Many individuals have been helpful and I would particularly like to thank Hugh Anson-Cartwright, Fred Bodsworth, John Dales, M.F. Feheley, Ron Scovell and Carole Moore and Richard Landon. Many private collectors in the birding world have lent items for the exhibition and I am most grateful to all of them.

Veronica Fisher has done a splendid job with the design and presentation of all of the winged creatures. Emrys Evans and Linda Joy have been innovative in the mounting of the exhibition and have left no stone unturned. The staff of the Fisher Library and especially Katharine Martyn and Anne Dondertman have been most generous of their time on both the exhibit arrangements and catalogue proofing. Other Fisher Rare Book Library staff have put up with my continual presence

cheerfully and have been very helpful. My friend Marion Magee, despite a busy schedule has been most helpful on editing; any errors or omissions remain mine alone.

Joan Winearls, *Guest Curator*



Joseph Wolf's Gyr Falcon from Daniel G. Elliot's The New and Heretofore Unfigured Species of the Birds of North America (1869). Courtesy of the Toronto Reference Library.



The Yellow-shafted Flicker from Mark Catesby's The Natural History of Carolina, Florida and the Bahama Islands (1731-43) vol. 1 Plate 18.

ART ON THE WING

BRITISH, AMERICAN, AND CANADIAN ILLUSTRATED BIRD BOOKS FROM THE EIGHTEENTH TO THE TWENTIETH CENTURY

THE ILLUSTRATION OF BIRDS in books has been an essential part of the growing understanding of new species and of the differences between species for both the scientist and the layman since birds were first depicted in books in the sixteenth century. Although photography has become an important means of documenting birds, the artistic rendering of the bird by both scientific illustrators and artists has continued to play a vital role in the detailed description of various bird species and in our enjoyment of them. It has been estimated that from the sixteenth century to the mid-twentieth century there were about 600 artists in the world who have spent some of their time depicting birds. Today there are even more bird guides and books on various species illustrated by artists, and probably more artists who depict the bird in art, than throughout that earlier period. This exhibition looks at the portrayal of birds in books as it developed, primarily in Britain, from the eighteenth to the nineteenth century and then as it was practised in the United States and Canada in the nineteenth and twentieth centuries. Although a multitude of different birds from all parts of the world were being discovered and drawn the emphasis in this exhibition is on species found in the Americas.

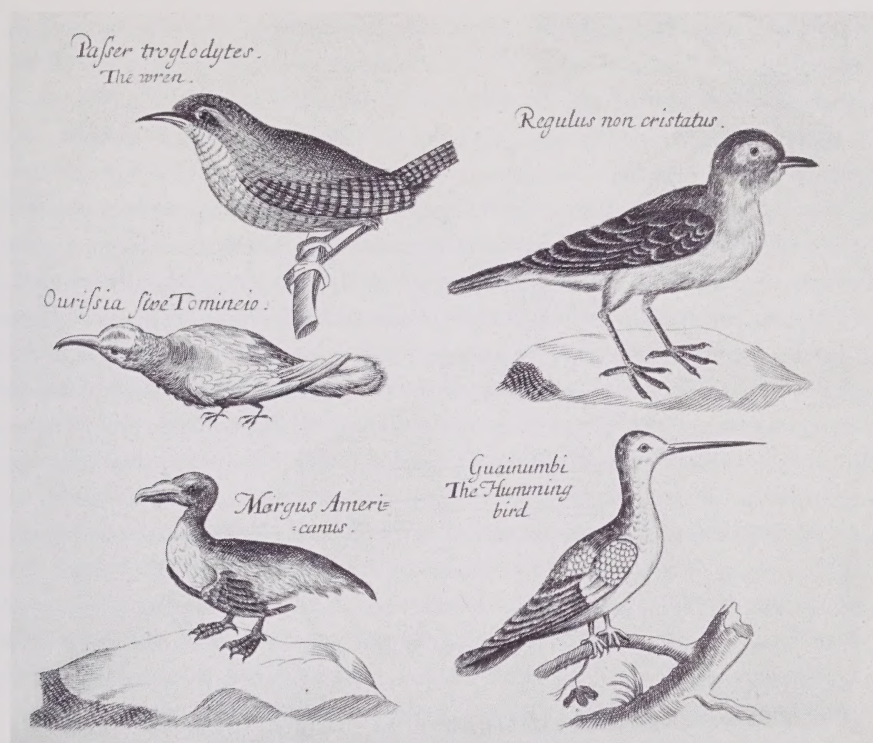
The catalogue and exhibition are divided into nine major sections. The initial emphasis is on the methods of illustration used in Britain — etching and engraving, wood-engraving and lithography, the hand-colouring of illustrations — and on chromolithography and experimental techniques in using wood and metal plates for colour printing. The discovery and acquisition of specimens during the great trips of exploration in and around North America and the drawing of these birds is examined as well as the work of American and Canadian illustrators in depicting the birds of their own countries. The greatest period of illustrated bird books, from about 1830 until the First World War, was exemplified in the large folio books produced first by hand-coloured lithography and later by chromolithography. Following this efflorescence, the general quality of illustrations declined until the advent of modern photo-reproduction techniques after the middle of this century. The development of smaller and more popular books illustrated with wood engravings and line drawings is an important subtheme of the exhibition as is the evolution of the field guide in the early part of the twentieth century.

CASE 1

BRITISH ETCHED AND ENGRAVED BIRD BOOKS (SEVENTEENTH TO NINETEENTH CENTURIES)

THE DRAWING OF BIRDS and the illustrating of books about birds depended from the beginning on the collecting of specimens. From the seventeenth century in Britain, naturalists were collecting specimens, mounting them, and creating museums in which to display them. At the same time wealthy collectors were setting up aviaries or menageries in which to display live birds. In Britain the three great collectors of the eighteenth century were John Tradescant, Sir Hans Sloane, and James Petiver. Tradescant's museum included birds brought from Virginia by his son between 1637 and 1654. It was easy enough to collect local birds and preserve them after a fashion, but there were always problems in preserving birds collected at a distance so that they would still be recognizable when they arrived in Britain. In the seventeenth century collecting abroad was haphazard and often depended on sailors bringing species back, but by the mid-eighteenth century wealthy patrons such as Sir Joseph Banks and societies such as the Royal Society were able to persuade officials to include a natural history component in the various expeditions being sent out and often underwrote the costs of this work themselves. Patrons often commissioned the drawing of birds in their aviaries which allowed artists to draw some birds accurately, although not to depict them in their natural habitats. However, many artists had to work from poorly preserved skins and it is not surprising that early renderings of such birds are somewhat wooden. In many cases the birds had never been seen alive and artists thus had no idea how the bird looked while perching or at rest. Moreover, the colours of skins had often faded, soft parts such as eyes had been removed, and bills and feet had disintegrated. The stances of birds in these early works have been described by one writer (Simpson: 201-3) as the "stump and stare" or taxidermist's style: the bird appears on a small stunted tree trunk, often adorned with stylized leaves, and the foreground of the drawing is embellished with minute shrubs, grass tussocks, and flowers. This description catches the feeling of many of these early works, essentially replicas of mounted displays.

The artists were also constrained because their work had to be prepared for reproduction, at first by engraving or etching and later by lithography. Oil paintings did not lend themselves to this transformation. The original, usually a water-colour



The hummingbird and 'Mergus Americanus' from Francis Willughby and John Ray's Ornithology (1678), Plate XLII.

painting, had to be very precise, with all the feathering and other details in place for the engraver to make an exact copy; but since the engraver was generally not familiar with birds, the bird often appeared even more lifeless in the printed illustration. In consequence, artists preferred etching and learned to use this technique themselves, a practice which allowed them greater control over their original work. Once the hand-colouring of etched plates was established as the norm, artists realized that they only needed to draw the outline of the bird and then use hand-colouring for the feathering and other details. However books that were to be issued in both uncoloured and coloured editions still required the birds to be etched in detail and in the period in which this technique flourished, considerable detail was generally etched on the plate. The hand-colouring was done in water-colour in imitation of original art and where a glossy sheen was required egg white or gum water was added. The British dominated the production of hand-coloured illustrated bird books from about 1730 until the early twentieth century when the last lithographed bird

book with hand-coloured illustrations was produced. As Christine Jackson, the main authority on this period points out, even after experiments in the middle of the nineteenth century proved that printing in colour was feasible, "the hand-water-colored plate retained its popularity. Owning a hand-colored print was the next best thing to owning an original watercolor painting" (Jackson 1985: 25).

The authors of these books were a varied group. Some were gentry or scholars who had the birds drawn and reproduced by others, some were artist/naturalists who drew their own illustrations, and some were craftsmen — artists, engravers, and colourists who generally worked for the others but sometimes produced their own books. Some artists eventually became naturalists and wrote their own texts in their later works. As it was costly to produce these illustrated books, they were issued in parts and subscriptions sought. Each part would consist of several plates of birds of various families and sizes and the accompanying text. Once the work was complete, a title-page and introductory material was issued, usually with the last part; the plates and text then had to be re-sorted into intended final groupings and would be bound as the owner wished. Copies of a single work often differ from one another because plates may have been touched up and prints may have been gathered from different printings or produced on different papers. Colouring could also vary, the later work of a colourist often being better than his first attempts.

The first works on birds tended to be encyclopaedic in nature. As more and more birds were discovered both at home and abroad specialization became more common. Many of the books on display from the British period were in fact designed to be on British birds, but American birds were frequently included by accident or because the species ranges across the whole Arctic region. By the early nineteenth century the size of books began to increase to folio and elephant folio to show birds life-size, the first examples being those by Prideaux John Selby and John James Audubon. By the mid-nineteenth century the explosion in discoveries of foreign birds resulted in monographs confined to particular bird families, many illustrated with life-size plates.

The early bird books were illustrated by woodcuts, a heavy-handed and difficult technique to use for subjects that generally required fine linework. Making a woodcut involves cutting away all of the wood that is not to print. The lines that result are usually quite thick, and to show feathering and tonal qualities is thus very difficult. Most work using woodcuts was however done on the continent. The newer method of copper-engraving was used for the first major book on British birds. It is an intaglio method of printing involving incising lines into copper which hold the ink during the printing process while the rest of the plate remains blank. This tech-

nique worked very well when authors were able to hire engravers to reproduce either their work or that of another artist.

In 1676 Francis Willughby (1635-1672) and John Ray (1627-1705) published — in Latin — their *Ornithology*. Two years later an English edition appeared. Willughby and Ray's great contribution was as scientists who had collected extensively, done considerable research, and in fact produced the first British systematic treatise on ornithology. For the illustrations they hired artists such as Sir Thomas Browne to do their drawings, and in some cases the artist copied the birds from continental sources described in the preface. Ray, who produced the book after Willughby's death, hired the best engravers of the time, such as William Faithorne and Frederick H. van Hove, but he complained in the preface that they did not do justice to the original drawings. In the engraving process the plates are printed on a separate press from the text, and in this volume, as in many early books, the birds were grouped, several to a plate to make use of the full page. They were divided into land birds and water fowl and then grouped and described by habitat, size, or appearance. Willughby and Ray sought to cover all known birds in their work, and the plate shown includes American birds such as the hummingbird and the "Mergus Americanus". As this book was not to be coloured, full engraving of the birds was done to show general shape, feathering, and shapes of beaks and feet.

Eleazar Albin (d. 1741-2), unlike Willughby and Ray, was a professional water-colour painter and did all of the 306 illustrations (with help from his daughter Elizabeth on 41 plates) for his *Natural History of Birds*, first published in three volumes from 1731 to 1738. He may have learned to etch, but some of the plates in the book are signed by two other etcher/engravers, Henry Fletcher and G. Thornton. Henceforth, etching, a further development of engraving, became the preferred technique for reproducing illustrations. While an engraved plate requires incising with a graver, which needs considerable skill to handle and is usually used only by a professional, etching is much easier. In etching, the artist draws the design with a needle through a ground covering the copper. The plate is then exposed to acid which is the agent that cuts the lines into the copper. Albin said that he drew his birds from life, but it is probable that he, like others, acquired his birds already dead from someone like the "London Bird-Catchers" mentioned in his preface. At other times he may have drawn live birds in private aviaries. Albin's anecdotal notes on the birds reveal that he was not a naturalist, but he did attempt to describe the bird and to indicate where he got his specimen. About eight American species were included in his book, although two were seabirds already known in Britain. Elizabeth Albin did some of the best plates in the book, and her version of the Northern Cardinal is a quite reasonable facsimile of this well-known bird even if the tree stump is somewhat out of proportion.

One of the first to realize the need to draw from some knowledge of birds and to see them alive in their habitat was Mark Catesby (1683-1749) who twice visited North America to gather information and drawings for his *Natural History of Carolina, Florida and the Bahama Islands*, published in two folio volumes between 1731 and 1743. On his first trip, 1710-19, he collected plant specimens and seeds and established a reputation for himself as a naturalist. This skill along with his artistic ability led the Royal Society to send him on a second collecting trip which was funded by private subscriptions raised by Sir Hans Sloane and other natural history collectors. Catesby collected most of his bird specimens on this second trip, in 1722-6, and produced many drawings from birds seen in the field or freshly killed. On his return to England he began work on his book which was issued over the next several years in ten parts of approximately twenty plates each. Of the total of 220 plates, 109 were of birds. In his introduction Catesby described learning how to etch the plates himself (from Joseph Goupy, a fashionable drawing master of the time) in order to reduce his costs. He went on to comment that he omitted the normal method of crosshatching, preferring fine linework "to follow the humour of the Feathers which is more laborius [sic] and I hope has proved more to the purpose" (p. xi). He coloured the early plates himself and hired others to finish the work. Some of the colouring is not accurate, the reds being particularly poor. Because of his earlier work with plants, most plates include plants and insects which are beautifully done although they are not always appropriate backgrounds for the birds being shown. Catesby was the first to use a folio format because he wanted to show many birds life-size; but for those that had to be reduced he did not indicate a scale. His birds are generally not very life-like but he did attempt to show pertinent details such as the wing of the Yellow-shafted Flicker, and he displayed the bird artistically against the leaves of an oak tree. Despite its faults, Catesby's work gains significance because it was the only work on American birds published during the colonial period and because Carl Linnaeus later based a third of his American bird descriptions and names on data furnished in these volumes. Other naturalists such as George Edwards and Thomas Pennant also used his information as source material, and the former produced smaller format editions of Catesby's work in 1754 and 1771.

George Edwards (1694-1773) played a prominent role in the publication of British bird books during the eighteenth century. Although trained as an accountant, Edwards became Librarian of the Royal Society of Physicians. He was an accomplished naturalist and a close friend of Sir Hans Sloane. Initially, he produced original drawings of birds to make a living and he often drew the natural history objects owned by his wealthy friends. Eventually his friends persuaded him to publish a book on birds. As their titles indicate, his emphasis in the ensuing volumes was on

uncommon birds or those previously poorly drawn. His first work, simply entitled *A Natural History of Birds*, appeared in two volumes from 1743-7. Finding that he had much more material, Edwards issued two more volumes with an added title-page for the whole work. *A Natural History of Uncommon Birds* was completed in 1751 and had 210 plates. Finally, he produced a three-volume work, *Gleanings of Natural History* (1758-64), which included quadrupeds, insects, and plants as well as birds.

Edwards learned etching from his friend Mark Catesby and he was the artist and etcher for all of his plates. He also coloured many of them and prepared samples for other colourists to finish the work. He considered colouring important enough that he vowed in one preface never to leave any copies of the books uncoloured lest someone colour them incorrectly. Edwards also provided useful advice on drawing,

etching, and colouring birds in the last volume of his main work. He gave instructions on grinding colours to produce permanency and the right tone and on how to apply them in a proper artistic fashion. On etching he described how to apply the acid to the plate while at times "stopping out" so that the etching was done lightly or deeply as required.

Edwards is generally deemed a better draftsman than Catesby and his birds are certainly less stiff. However, he too faced the problems that arise in working from dead specimens or skins. His birds sometimes lack proper structure and his feathering is frequently crude.

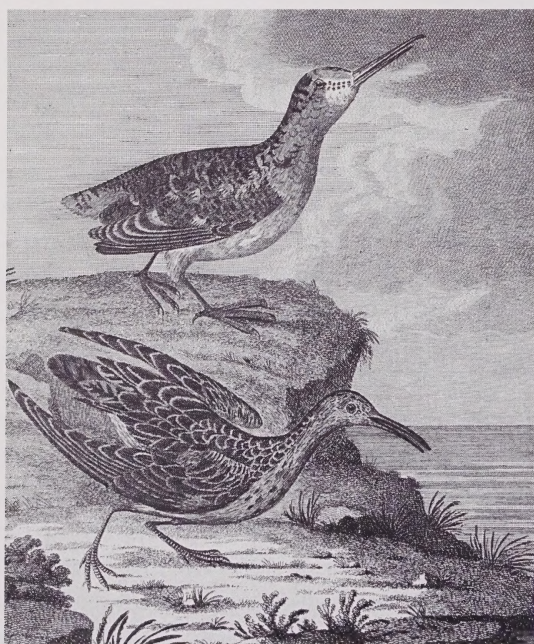


The Northern Cardinal from Eleazar Albin The Natural History of Birds (1738-40) vol.1 pl. 57. Courtesy of the Blacker-Wood Library of Zoology, McGill University.

Most of the birds that he included were from foreign countries which he documented in detail. Many of the North American birds came from Hudson's Bay Company sources (and here he particularly acknowledges specimens he received from Alexander Light and James Isham) and some came from William Bartram in Pennsylvania and from Catesby. Approximately 86 American birds appear in his works, including a substantial number of warblers (several illustrated for the first time) and

several hawks and other land birds including hummingbirds. On the whole, the birds are drawn better in the later volumes, and in these Edwards sometimes included small outline drawings to show the exact size of the bill, for instance, the Puffin and the Razorbill. The decorative frontispiece of Volume II of Edwards' first work, in typical eighteenth-century fashion, shows the artist at work supported by the Muse, surrounded by some of the birds he is drawing and some of his engraving tools. It is inscribed to Edwards and "Ornithologia Nova", an appropriate memorial for such an influential ornithological artist. Edwards' work was used by many later naturalists. He supplied Linnaeus with 100 illustrations from his books to aid in the latter's systematic description of species, and his work was also used by John Latham and William Swainson.

Thomas Pennant (1726-1798) was born into a certain amount of wealth and, unlike his predecessors, was more interested in writing books on natural history than in drawing. Generally he had drawings done by others and etched by a professional. He is best known for his *British Zoology* which was issued in four editions between 1761 and 1777 and in two further editions after his death. He corresponded with many important men of the period, from the doyen of natural history, Gilbert White, to the explorer Samuel Hearne and the craftsman Thomas Bewick, and he acknowledged the assistance of Sir Joseph Banks, Johann R. Forster, John Latham, and George Edwards in his books. Both Pennant and Banks realized the importance of accurate



pictures and descriptions of the birds being collected, and to achieve this goal they used their own wealth to support the work of various artists.

In the history of American ornithology, however, Pennant's most important work was his *Arctic Zoology*, issued in two

The Eskimo Curlew and American Woodcock from Thomas Pennant's Arctic Zoology (1784-5) vol. 2 Plate XIX.

volumes in 1784-5 and in a revised edition in 1792. Originally, he had intended it to cover George III's dominions in North America and to title the volume "American Zoology" but when the American colonies separated from Great Britain he was extremely upset and renamed it, somewhat inaccurately, it must be said. In Volume II of the work, he describes approximately 264 North American birds. Many of the specimens were received from Andrew Graham and Humphrey Marten who were in the regions controlled by the Hudson's Bay Company, from Banks who collected them on his trip to Newfoundland and Labrador, and from other naturalists such as Catesby, Forster, and Peter Kalm, but many were also received from correspondents in South Carolina, New York, and Pennsylvania. Pennant in fact seems to have played a major role in directing the collecting and describing of specimens from Hudson Bay. Unfortunately there are only 16 plates in the book to illustrate the wealth of birds he described. Many of these plates are unsigned except for the etcher's name, Peter Mazell, who had also done the work for *British Zoology*. Peter Paillou did the frontispiece of Volume I, Peter Brown drew the American Avocet, and Moses Griffith did four hawks and the Baltimore Oriole. It may be that some of the unsigned plates are by Pennant himself but there is no definite evidence to support this conclusion. The plate of the probably extinct Eskimo Curlew, although unsigned, has been identified as a copy from Sydney Parkinson's painting done for Joseph Banks (Lysaght 1971: 414). In the copy of Pennant's book in the Thomas Fisher Rare Book Library, John Dalton, a resident of Quebec at the time, has made marginal notes describing the abundance of the shore birds: "they grow so fat in October that they burst when they fall." The illustrations are workmanlike and uncoloured but often include more in the way of background than the earlier books. Pennant's book remained the standard on the ornithology of northern North America until the increase in collecting and publishing arising from the many expeditions in search of a Northwest Passage in the first half of the nineteenth century. Pennant's overall work was generally of great importance, and it has been stated that his work "rescued ornithology from near oblivion and brought zoology to the fore as a worthwhile pursuit at a time when most naturalists' enthusiasm lay exclusively in botany." (Jackson 1985: 115).

Another important naturalist and artist of the time was John Latham (1740-1837), a doctor who built up considerable specimen collections. He sometimes etched his own plates (as in his *General Synopsis of Birds*, (1781-5) working from drawings by some of Sir Joseph Banks's artists. He is best known for his third work, *General History of Birds* (1821-8). Produced in ten volumes, it is remarkable for its comprehensiveness and the 193 coloured plates all done by the author. Elliot Coues described Latham as one of the six great workers on American birds in the eight-

eenth century, a list which also included Catesby, Edwards, and Pennant. He is usually deemed to be the best in terms of scholarly work and, as Jackson (1985: 136) says, "For fifty years he was the chief recorder of the world's avifauna" at a time when the pace of new discoveries was rapidly accelerating. The quality of his art work, however, was inferior to his text and his illustrations were badly coloured.



The Bohemian Waxwing by James Stewart from Sir William Jardine's The Naturalist's Library. Ornithology. vol X Part II (1839) Plate 11.

The last great engraved and etched bird books were produced in the first third of the nineteenth century just as the copper plate and metal engraving technique was facing competition from, on the one hand, the cheaper wood-engraving technique and, on the other, the new technique of lithography. Prideaux John Selby (1788-1867) and Sir William Jardine (1800-1874), were both landowners and collectors who collaborated extensively on their books and were responsible for the best of the fully British productions. Selby produced the largest book to that date, *Illustrations of British Ornithology*, issued from 1821 to 1834 in nineteen parts in elephant folio format. Jardine produced some of the smallest and most affordable books. Both used William Home Lizars in Edinburgh for the engraving or touching up of plates they etched themselves. Both Selby and Jardine met John James Audubon, the great American bird artist, and took drawing lessons from him. Selby's work was

very fine but was unfortunately eclipsed by Audubon's great double elephant work which was being issued at the same time.

Jardine and Selby together did most of the drawings for and produced a smaller quarto four-volume set, *Illustrations of Ornithology* (1826-43), which included mainly foreign birds and was etched by Lizars. The success of this venture led Jardine to do a series of small illustrated volumes published at prices within the reach of the middle class in his famous *Naturalists' Library* series which totalled forty volumes when complete in 1846. Fourteen of the forty volumes produced were devoted to birds, and several bird artists worked on these, including Jardine himself, Selby, Edward Lear, William Swainson, and James Stewart, a Scottish painter. Lizars did the engravings, and 446 bird illustrations were produced. The series went through many editions, however, and in the end thousands of copies of these plates were produced. Volumes were issued at the rate of four a year and each was devoted to one bird family or grouping. Most of the texts were written by Jardine, and they also included biographies of prominent naturalists. In later volumes quite detailed backgrounds were drawn for the birds, somewhat similar to those of Thomas Bewick, but only the birds themselves were coloured. Jardine's next project was the first number of *Contributions to Ornithology*, issued in 1848. This irregular publication, which ended with the fifth volume in 1853, may have been the first periodical devoted to ornithology. It was also innovative in the techniques used for reproducing illustrations and demonstrated some of the experiments under way at the time. Although some illustrations were still engraved on copper, others were lithographs and yet others were done by the anastatic process which involved the transfer of an actual print or drawing to a zinc plate which is then used for printing. Jardine was only a competent bird artist but in his entrepreneurial and organizational skills he rivalled John Gould and some of his experimentation pointed the way to future developments in the publishing of bird illustrations.

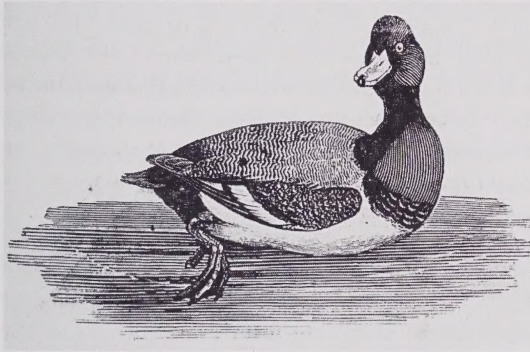
IN THE EARLY nineteenth century etching and engraving techniques for bird illustration were about to give way to two new techniques that developed nearly simultaneously — wood-engraving and lithography. In a sense wood-engraving took over the black and white work from etching and made it possible to produce illustrations of varying sizes on the same page as text. Lithography took over in the colour area and the high end of fine book production, making it easier and cheaper to create larger hand-coloured illustrations.

WOOD-ENGRAVING AND COLOUR-PRINTING EXPERIMENTS IN NINETEENTH-CENTURY ORNITHOLOGICAL BOOKS

WOOD-ENGRAVING HAD A MAJOR impact on ornithological illustration because it was a process that allowed for the relatively inexpensive production of large numbers of small, illustrated bird books for a variety of purposes and for all levels of society. Engraving and lithography died out or were transmuted into techniques involving colour printing and photography, but wood-engraving endured and is still used for book illustration. Where the woodcut emphasizes the black line by the cutting away of all parts not printed, wood-engraving, done on the harder end-grain of the wood block with finer cutting tools, produces fine lines and a white line effect from the incised parts not receiving ink. Blocks can be incorporated into pages of type and this means that the size of illustrations can vary and the technique could be used for small diagrams showing parts of birds. The latter feature encouraged the publication of scientific articles and manuals on ornithology during the nineteenth century because many more small illustrations could now be included in such works. Generally, wood-engraving was not hand-coloured and this saved another step in the publishing process, but it also meant that the artist's work had to be more finished as it would not be touched up later by colouring. Wood engravings tended to be unsigned and thus there is often less information about who was responsible for the drawing or designing of the illustrations and who engraved them. In the early period artists such as Thomas Bewick, Benjamin Fawcett, and John Thompson did original drawings and also transferred them to wood. In fact Bewick worked straight on the block at first, as do twentieth-century wood-engraving artists. Later he did pen and ink with wash drawings first. After about 1830, when there were sufficient craftsmen, many artists had their drawings engraved for them and authors such as T.C. Eyton and William Yarrell employed both artists and wood engravers for their bird books.

Thomas Bewick (1753-1828) is responsible for the refinement of the wood-engraving technique, demonstrating that it was a superb method for the production of inexpensive natural history books. He was born in Cherryburn, Northumberland, and spent most of his life in and around Newcastle. He began his working career as an apprentice to Ralph Beilby, a craftsman who produced a variety of products based on metal and wood-engraving. Bewick did much of the wood-engraving as

Beilby disliked it and he began to make his own tools for this work. In 1777 he went into partnership with Beilby; during the day he did a variety of crafts and at night he worked on illustrations for his books. From 1779 to 1790 he worked extensively on wood-engraving and perfected a technique to allow clean printing from the blocks. He chose a much harder wood than had been used formerly, generally boxwood. He shaved the edges of the block and lowered the sections that he wanted to print lighter and worked on methods to create tone and shading. In the end he was able to produce work that rivalled copper-engraving. Once Bewick had done his first book on animals in 1790, he began to think about a book on birds. He was familiar with the works of Willughby and Ray, Edwards, and Pennant. Although he began



The Scaup Duck from Thomas Bewick's History of British Birds (1832) volume 2, p. 355.

working from stuffed specimens in Tunstall's Museum, he later tried to draw as much as possible from nature, working from freshly killed specimens or live birds. The first volume of *A History of British Birds* was on land birds and appeared in 1797. The volume on water birds followed somewhat belatedly in 1804. The delay occurred because

Bewick bought out Beilby's rights on his books and then had to write the text for the second volume himself. The volumes were produced in three different formats and Bewick did some of the printing himself to avoid excessive inking of the blocks by the regular printers.

The bird books were Bewick's greatest achievement, and he set a very high standard for wood-engraving with his exquisite feathering and details. He sometimes included quite sensitive and detailed backgrounds for his birds and although he clearly was more familiar with some birds than others, the overall effect is life-like and convincing. He is, of course, famous for his small tail-pieces of country scenes and figures, all charming vignettes of rural life. Six editions of Bewick's work on birds were produced in his lifetime, and he issued other smaller versions and revisions as well. The last edition to be printed from the original wood blocks was that of 1847. Towards the end of his life, Bewick met John James Audubon, and in this brief visit they developed a mutual admiration for each other. Despite the vast differences in their work, Audubon clearly understood and appreciated the contribu-



Wood-block of a lesser Tern by Thomas Bewick for his History of British Birds vol. II.

tion Bewick was making, as he later said that Bewick was to wood-engraving what Linnaeus was to natural history: "though not the founder, yet the enlightened improver and illustrious promoter" (quoted in Lambourne: 101).

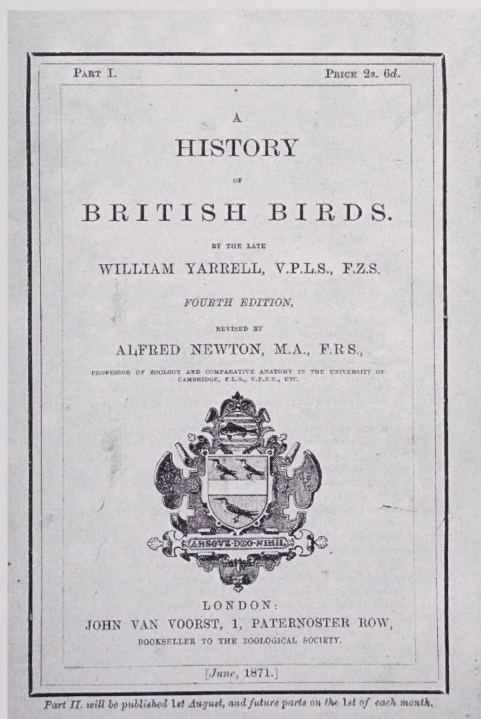
In spite of the importance of wood-engraving for bird books, there was a lag between the publication of Bewick's *History of British Birds* and the appearance of other bird books using this method. When they did appear, their authors and artists tended to copy Bewick's format both in the depiction of the bird against a habitat background and in the use of vignettes as tail-pieces at the ends of chapters. One of these imitators was Thomas Campbell Eyton (1809-1880), a member of the landed gentry from Shropshire who was a businessman, a local magistrate, and active in a variety of initiatives related to natural history. While still in his twenties he published *A History of the Rarer British Birds* (1836) and had it illustrated with wood engravings because of his admiration for Bewick's work. The illustrations were made from specimens in his collection and were probably from Eyton's own drawings. The engraver was "Mr. Mark, engraver on wood, Wellington" about whom nothing is known. Mark's work shows less facility with engraving than Bewick had and his birds are not as life-like. However, Eyton's collection of forty-two species is interesting because it included some Arctic birds, the "Virginia Cuckoo" (Yellow-billed Cuckoo), and the Shore Lark (or Horned Lark as it is known in North America). Eyton also produced *A Monograph of the Anatidae or Duck Tribe* (1838) which, like many other books in the next few decades, used wood-engraving for the minor illustrations and diagrams but lithography for the 24 plates by Edward Lear. Eyton corresponded with major scientific figures of the day such as Darwin, Richard Owen and Louis Agassiz and also with William Yarrell, who was soon to produce the first edition of his major work on British birds, and he borrowed specimens from Yarrell's collection to draw.

William Yarrell (1784-1856) was the main producer of wood-engraved books after Bewick. His importance rests on his status as the publisher of the standard nineteenth-century inexpensive illustrated textbook on British birds. Yarrell was born into a family of booksellers and he went into the family business with a cousin. However his interests lay with natural history and he became a member of the Royal

Institution where he attended lectures on natural history, and developed his knowledge about birds and fishes. By 1825 he had begun publishing scientific papers and was soon accepted by other naturalists in London, joining the new Zoological Society in 1826 and later serving as its vice-president. Yarrell admired Bewick greatly and sent specimens of rare birds from his own museum for the latter's use. Yarrell's *History of British Birds* was issued in parts from 1837 to 1843. Like Eyton, he was influenced by Bewick and chose wood-engraving as the best method of illustration. Most of the drawings for the 579 figures were by Alexander Fussell and the engraving was done by John Thompson & Sons who may also have drawn some of the birds as well. Fussell came from a family of painters who were fairly well-known in London at this time. John Thompson (1785-1866) was one of the most distinguished wood engravers of his time and had exhibited his engravings in London, although much of his work was done for book illustration. In his work for Yarrell he was assisted by his two sons, but on the few illustrations that were signed the particular family member was not identified.

Yarrell commissioned tail-pieces on ornithological subjects as well and these included comparative anatomical details, chicks, and nests, as well as one vignette showing a lady needlepointing a bird. His text is simple but authoritative, and he

cites earlier descriptions of the bird under discussion in British and sometimes American books. The Eskimo Curlew described and illustrated in his second supplement (1856), was noted as the first record found in Scotland and references are given to Pennant's *Arctic Zoology* and Swainson and Richardson's *Fauna Boreali* as well as to the North American works of Alexander Wilson, Audubon, and Thomas Nuttall. Yarrell's book was popular enough that he issued several supplements and revised editions.



Cover of a paper part from Alfred Newton's revision of Yarrell's *History of British Birds* (1871-85).

After his death a fourth edition, completely revised and much rewritten by two prominent British ornithologists, Alfred Newton and Howard Saunders, was issued in parts between 1871 and 1885 with 564 wood engravings. For this edition additional illustrations were made from drawings by J.G. Keulemans, Edward Neale, and Charles Whymper and engraved by several other engravers including the Dalziel Brothers. Keulemans and Neale normally worked in lithography but both also produced drawings for wood engravers to copy.

William MacGillivray (1796-1852) was publishing a work on British ornithology at the same time as Yarrell, yet his more scientific *A History of British Birds* (1837-52) was much less popular. MacGillivray had decided that he could not afford metal engraving for full bird portraits. He used steel engravings to display full pages

of anatomical details and wood engravings for small illustrations of parts of birds such as heads and feet. The lesser popularity of this book may have been partly a result of MacGillivray's more scientific approach, offering considerable detail on bird physiology, digestive systems, flight, and mode of walking, but it is also true that his illustrations were not as attractive as those in Yarrell's book. Also at this time, there were several bird books with wood engravings published by the Society for Promoting Christian Knowledge. One was *British Birds in their Haunts* (1862) by the Rev. C.A. Johns, illustrated with 190 engravings after Joseph Wolf and engraved on wood by Josiah Wood Whymper. Birds were shown at one-third life-size. Despite being a popular account, the introduction included a discussion of the problem of listing increasing numbers of American



Crested Quetzel (trogon) colour printed by J.M. Kronheim from Cassell's Book of Birds (1869-73) volume 3-4.

birds in British bird books, and Johns rejected many birds which he deemed had only made their way accidentally to Britain.

Benjamin Fawcett (1808-1893), an artist/publisher, is best known for his experiments in colour printing, discussed below. However, he was a major force in wood-engraving and printing at mid-century and his skills in wood-engraving were considerable. Born in Yorkshire where he worked all his life, he met Bewick as a

young man and admired his work greatly. In 1831 Fawcett set up a stationery and printing house in Driffield, hired some excellent assistants, and produced some remarkable books for which he oversaw all aspects of the printing and binding. He drew birds himself and in the early period copied some of Bewick's work by reversing the images directly on the wood block. Fawcett also did most of his own binding and a children's book by Henry Gardner Adams, *Hummingbirds*, which was issued in several editions from 1856 to 1871 has a splendid gold and blind stamped binding showing four different hummingbirds in dramatic poses. In 1844 he began to collaborate with the Reverend Francis Orpen Morris (1810-93) and he produced Morris' *A Book of Natural History* (1849) before beginning work on his *History of British Birds*. The latter was issued in shilling parts of four plates each per month between 1851 and 1857 and later bound into six volumes. Fawcett engraved the plates on wood from drawings by Richard Alington and some images copied from John Gould and demonstrated that wood-engraving could be done successfully for the larger quarto format. Although these plates lacked the charm of the smaller ones like Bewick's, they were clear and good for identification purposes. They were also some of the few wood-engraved publications on birds that were issued with colouring, Fawcett's wife having created a colour pattern for the "colour girls". Fawcett stated in the preface to the book that his aim was to issue the work at the lowest possible price so as to interest people in the study of natural history. The book was very successful and was re-issued several times. In 1855 he drew, engraved, and printed the illustrations for *British Game Birds* by Beverly R. Morris (F.O. Morris' brother). The 60 wood engravings were printed in black and grey and then hand-coloured. The plates were even larger and mounted on hinges to form a double-page spread, each plate depicting one species or a pair. Fawcett also had pupils, his most outstanding being Alexander Francis Lydon (1836-1917), a superb artist. By the mid-1850s Fawcett was concentrating on his colour printing and other aspects of his business and he gradually left the artistic side to Lydon.

The earliest colour printing in a bird book was probably done by George Baxter (1804-1867) for Robert Mudie's *The Feathered Tribes of the British Islands* (1834). Only the frontispiece and title-page were colour printed. Baxter called this the "polychromatic printing" technique, and it was done by printing a key plate by the intaglio process and printing colour from wood blocks — perhaps ten to twenty to cover all the different colours. In this early use of the technique, the effect is fairly rough but Mudie paid tribute to Baxter's invention in the preface to the book. He suggested that in inventing a colour-printing technique from wood blocks he had "completed what was the last project of the great Bewick, but which that truly original and admirable genius did not live to accomplish." Baxter's methods were

used and modified by those who took out licences for use of his patent. One of the patentees was William Dickes (1815-1892) who took out a licence about 1840. Dickes was an artist and printer who did drawing and engraving on wood and metal plates and also lithography and chromolithography during his working life. In the early period, he modified the Baxter process printing so as to use a key aquatint plate and only one to ten colour wood blocks. Many of his plates show eggs as in C. Jennings' *Eggs of British Birds* (1851) and in several books for C.A. Johns. Later he produced colour prints for Anne Pratt's *Our Native Songsters* (1852) and for small bird books published by the Religious Tract Society and the Society for Promoting Christian Knowledge.

Another patentee was Joseph Martin Kronheim (1810-96) who came from Magdeburg, Germany, and established himself in London in 1846. In 1850 he also took out a Baxter patent and printed many books for the Religious Tract Society in the early 1850s. He adapted Dickes' process and produced prints using from eight to sixteen etched plates for the colour. The coloured plates in *Cassell's Book of Birds* (1869-73) which were drawn by F.W. Keyl, were printed by Kronheim using this process (Wakeman & Bridson: 66). The colours are subtle and very beautifully done. Kronheim had earlier experimented briefly with chromolithography but preferred the Baxter method for smaller works. After 1875, however, the firm used chromolithography.

Benjamin Fawcett began to experiment in chromoxylography, or colour printing from wood blocks, in 1852. The technique and the carefully prepared inks he used were particularly well suited to water-colours and he was able to fulfil his aim of imitating the original quite faithfully. Fawcett began his experimentation with the plates of birds' eggs in Francis O. Morris' *A Natural History of the Nests and Eggs of British Birds* (1852-6), printing the spots with an additional colour plate. Fawcett's best colour printing in the area of ornithology was probably done for H.G. and H.B. Adams's *The Smaller British Birds* (London: George Bell and Sons, 1874). A.F. Lydon did the watercolours and the engraving for the 16 plates of birds and the 16 plates of eggs in this book. The birds are roughly grouped into related families and the six or seven birds are shown on branches or the ground, somewhat out of scale but against a reasonable habitat. To maintain his standards, Fawcett used very fine-lined engraving on Turkish or Persian boxwood, printed on the best papers, and he inspected every plate after printing to ensure high standards. Fawcett's two great assets in this period were the talents of his artist and engraver, Lydon, and his own ability to mix inks and print to the highest standards. To prepare for the engraving and printing, Lydon had to determine how many colour blocks would be needed, how the colours would be blended to produce the tone or intensity wanted, and

Buntings drawn by A.F. Lydon and colour printed by Fawcett from H.G. & H.B. Adams's Smaller British Birds (1871) Pl. 10. Courtesy of the Robertson Davies Library, Massey College.

which colour to use as the base since it needed to blend with the other colours. He seldom used black for the key block. Often he had to add another block for a special colour and in some cases tiny amounts of colour were added by Fawcett's colourists at the end. Once Lydon had the blocks engraved, Fawcett had to do the printing, working out the order for printing the



colours, achieving the right amount of inking and good registration; the key block was printed last to tie the whole together. Fawcett's work was so good that the colours have not faded over the years and his work is commonly mistaken for the more colourful products of chromolithography. Another highlight of his work was W.T. Greene's *Parrots in Captivity* (1884-7). Ninety chromoxylographs of over 80 species were depicted and these are some of Lydon's best work for Fawcett. The author was so pleased with the book that he dedicated it to Fawcett. The Red Macaw is splendid but some hand-colouring has been added to sharpen up the portrait of the birds and perhaps to repair some faults in the colour printing.



Edward Lear's Yellow-ridged Toucan from John Gould's Monograph of the Ramphastidae or Family of Toucans (1834). Courtesy of the Toronto Reference Library.

CASES 3 AND 4

THE *G*R*E*A*T* *P*ERIOD OF *H*AND-COLOUR*E*D *L*ITHOGRAPHIC *I*LLUSTRATION AND *C*HROMOLITHOGRAPHY, 1820-1900

LITHOGRAPHY AND HAND-COLOURING

Lithography ushered in the golden age of hand-coloured bird illustration for books and at the same time sounded the death knell for the engraving and etching of bird illustrations. Invented on the continent, by Alois Senefelder in 1796, lithography was demonstrated by him in London in 1801. Although it was first used for books in Britain in the early 1800s, it was not used for a bird book until 1820. Lithography is a planographic printing method based on the chemical aversion of grease to water. The image is drawn in reverse with a greasy pencil on stone which is then enhanced with gum arabic and a nitric solution and washed with water. A special ink that adheres only to the greasy lines is used, leaving the rest of the stone blank. The lines are not as sharp as those produced by etching, but greater ranges of tone for light and shade are possible and lithography therefore produces a more subtle and painterly image. The technique is freer than etching or engraving and allows artists to work much as they do on paper. As with etching, many nineteenth century bird artists were able to learn lithography and to work directly on the stone. In most cases, it was only necessary to do the outline of the bird on the stone, with careful attention to beaks and feet, and the general outlines of the background such as flowers or trees; the remaining detail was carefully painted in with water-colour. Lithography worked best in large bold designs. This characteristic of the process as well as the large folio size desired by Audubon and Selby led to an increased interest in drawing birds life-size. As the century progressed, therefore, the books got larger — folio, imperial folio, and then elephant sizes were all used, the largest being double-elephant at approximately 29 by 40 inches, adopted by Audubon.

As the century wore on more artists began to draw from nature and capture the bird in its habitat. Joseph Wolf was the first to do this, but in the latter part of the century artists such as Archibald Thorburn and George Lodge revolutionized the approach to bird painting and most subsequent illustration showed birds and landscape together. Others continued to draw from specimens in museums or, after 1826, from live specimens in the Zoological Society of London. More and more specimens

were being brought back from abroad from the great voyages of exploration during the nineteenth century, but as the illustrations in journals show most of these birds were from Asia, Australia, and Africa and later South America. The new journals established for ornithology or natural history such as *The Ibis* (1859-) and the *Transactions* (1833-) and *Proceedings* (1849-) of the *Zoological Society* offered good illustrations of birds from these new discoveries. At the same time North Americans were mounting their own expeditions and publishing books on their own birds and British interest in publishing on North American birds declined markedly.

With the development of lithography new printers emerged and they played a prominent role in the printing and publishing of bird books in the nineteenth century. One of the early developers of lithography was Charles Joseph Hullmandel (1789-1850) who produced his own manual, *The Art of Drawing on Stone* in 1824. He was the first successful lithographer in Britain and later contributed to the development of the technique of colour printing by introducing the lithotint process. Hullmandel printed many bird illustrations. Other lithographers included Engelmann & Co., William Day (variously Day & Haghe and Day & Son), M. & N. Hanhart and T. Walter & Cohen who printed many of Gould's works. Little is known about colourists of the period but some recent research on Gabriel Bayfield (1781-1870), who had worked earlier for Swainson and later worked for Gould, suggests how desperate authors such as Jardine, Charles Darwin, and others were to obtain the services of good colourists (Jackson & Lambourne: 189). Generally artists created colour patterns for the colourists to follow and in Swainson's case he exhorted the colourist to hide the linework on his lithographs (Knight 1986: 284). The colour pattern for one of the birds in Swainson's *Zoological Illustrations* shows the sort of notes the author left for the colourist.

With the advent of larger, more expensive books, authors were even more dependent on subscriptions, and books continued to be published in this manner and issued in parts. About 200 subscriptions were needed before a venture would be financially successful. Sometimes a prospectus was issued with sample plates and a list of contents, or the book might be advertised in another book. The authors themselves had to solicit subscriptions and deliver the parts when done. If a subscriber dropped out, a new subscriber would be sought out and then the earlier parts had to be reprinted for them.

William Swainson (1789-1855) was the first artist/naturalist to use lithography for bird illustrations. Although he had produced work using etching and wood-engraving, he was attracted by the idea that he could draw directly on the plate itself and thereby maintain control over his work. Swainson was an all-round naturalist and travelled extensively collecting various specimens of insects, shells, plants, fishes, and eventually birds in the Mediterranean region and later in Brazil. His first work

using lithography — *Zoological Illustrations*, 1820-3 — was a small octavo book which included illustrations from these trips. It took him three years to produce his book because of problems with the new technique including spoilt stones and poor printing. His 70 plates of birds are very simple, fine-lined and quite detailed works depicting the bird on a branch but without other background. This style was much the same as that used in etchings and did not exploit the possibilities of the new technique.

Swainson used the same approach in the lithographs for *Fauna Boreali-Americana; or the Zoology of the Northern Parts of British America* (1831), a work he co-authored with Sir John Richardson (1787-1865). The 49 plates of birds were classified, named, and described by Swainson, with details on locations and the habits of the birds by Richardson. The latter had accompanied Sir John Franklin on his two land expeditions and had spent a considerable amount of time collecting and recording information on northern birds. Some of the birds Swainson illustrated included the Great Gray Owl, the Steller's Jay, the Magnolia Warbler, and possibly the first specimen of the Mountain Bluebird. Again the birds have a classic and cool beauty and the hand-colouring, which may have been done by Bayfield, is

absolutely exquisitely rendered. It is interesting that Swainson's drawing of the Magnolia Warbler is strongly reminiscent of the one Audubon published in 1829; Swainson had met Audubon in 1828 and declined to assist him with the writing of his *Ornithological Biography*. He had however taken a few drawing lessons from Audubon which may account for the similarities in their renderings of the bird. Swainson and Richardson's work was subsidized by the Admiralty and as such was the first natural history work to be supported by the British govern-



Magnolia Warblers from William Swainson and John Richardson's Fauna Boreali-Americana...Part 2nd: The Birds (1831) Plate 40.

ment. It was a major contribution to Canadian natural history. Swainson later lost some credibility as an ornithologist because of unorthodox ideas on bird classification, and he eventually emigrated to New Zealand in 1840.

Philip Henry Gosse (1810-1888), the famous English naturalist, also contributed to American ornithology. He first became interested in natural history when he went to work in Carbonear, Newfoundland in 1827. In 1835 he moved to Compton in Lower Canada (now Quebec) and tried but failed at farming. In 1838 he left Canada and travelled in the United States. Returning to Britain in 1840, he wrote and published his first work, *The Canadian Naturalist*. Soon after he began to attract attention for his scientific work, and in 1844 he was sent by the British Museum to collect birds and insects in Jamaica. He published his text, *The Birds of Jamaica*, in 1847 and produced the folio, *Illustrations of the Birds of Jamaica* in 1849. His 52 illustrations are small but beautifully rendered and hand-coloured lithographs printed by Reeve, Benham & Reeve, a London firm which lithographed other natural history works at mid-century. This was one of the earliest bird books produced by lithography, and Gosse's splendid hummingbird plates predate Gould's more famous work by over a decade.

An important artist in the early period of lithography was Edward Lear (1812-1888). Although he had no scientific instruction and never took drawing lessons except from his sister, he began to draw and paint in his teens after his family fell on hard times. Lear worked with all of the techniques and his first published book illustration was a wood engraving. He also provided drawings for Jardine and Selby for their *Illustrations of Ornithology*. Lear must have learned lithography early in his career as he published his own folio, *Illustrations of the Family of Psittacidae or Parrots*, in 1830-2. The 42 illustrations in the twelve parts were all drawn from specimens in the Zoological Gardens and private collections, lithographed by Lear and printed by Hullmandel. Lear then began to work for John Gould who was beginning his publishing career with folio and larger bird books. He assisted John Gould's wife, Elizabeth, on Gould's first book on the birds of the Himalayas, the splendid *A Monograph of the Ramphastidae, or Family of Toucans* (1833-5), as well as on his *The Birds of Europe* (1832-7), and on the plates for Darwin's *The Zoology of the Voyage of H.M.S. Beagle* (1841). Lear worked on most of the first nine books published by Gould, but unlike Elizabeth Gould, who was credited at the bottom of the prints, his work was frequently not acknowledged. Lear contributed nine plates for the work on toucans and these large and dramatic images show how he was able to draw out the individual personality of the bird, a hallmark of his work. Soon after this Lear found that he was suffering severe eye strain from the fine detail required in drawing birds and he left England for the continent in 1837, earning his living thereafter as a landscape painter.

Undoubtedly the greatest entrepreneur and publisher of lithographed bird books in the nineteenth century was John Gould (1804-1881). From 1831 until his death, Gould produced a total of 2,999 hand-coloured lithographs of birds in sixteen works amounting to forty-one imperial folio volumes and two smaller ones. These works consisted of monographs on the birds of five continents or regions including Australia, Europe, and Asia and on six bird families including toucans, trogons, partridges, and hummingbirds. Gould also published two reports from zoological expeditions including Darwin's report on the Beagle voyage. Gould did his own publishing, seeking subscribers for the works and arranging the printing and distribution of the parts. He collected and set up the specimens and made rough life-size plate designs for the birds in pencil with notes on feathers, bills, and other particulars. His artists then did the final water-colour sketches and transferred them to the stones. Gould was not really an artist himself and never learnt lithography. In the early period he relied considerably on his wife Elizabeth who did over 600 drawings for him and on artists such as Lear. Gould was a remarkable organizer and eventually became a reasonable ornithologist because of his work with skins. This is evident in the detailed texts he wrote for his later works.

Gould began as a taxidermist, a skill at which he became very proficient, and worked as a taxidermist and curator for the Zoological Society from 1827. When he acquired a collection of specimens from the Himalayas, he decided to produce an illustrated book and he convinced his wife not only to do the drawings but also to learn lithography. Unable to find a publisher, he decided to publish himself and the first part of his *A Century of Birds ... from the Himalaya Mountains* was issued in 1831. Hullmandel printed this work and was to print many of Gould's other works. After his wife's death in 1841, Gould hired Henry Constantine Richter (1821-1902) as his artist and lithographer and it was Richter who was instrumental in adding more plants and flowers to the plates. During this period the standard design of his plates slowly developed into what has been called the "Gouldian formula": a pair of the species in question perched on trees or the ground with fairly well-delineated foregrounds including plants and perhaps a nest, a lightly sketched background, and a pale blue sky.

Gould's *Monograph of the Trochilidae or Family of Hummingbirds* (1849-61), was one of his most artistically pleasing and successful publications. The 360 plates were drawn and lithographed by Richter and the work was issued in twenty-five parts. Usually each plate is devoted to a single species and in most plates at least one bird is flying to show off the plumage. Gould had collected large numbers of specimens of this species and in his work he documented locations and names of collectors. Perhaps in an effort to get more subscriptions, he mounted a display of 24



The White-tailed Sabrewing drawn by H.C. Richter from John Gould's Monograph of the Trochilidae or Family of Hummingbirds (1861) vol. II Plate 46.

glass cases of hummingbirds in a building he constructed in the Zoological Gardens during the Great Exhibition of 1851 and he demonstrated how he had developed a method to portray the iridescent colours by using gold leaf overpainted with transparent oils and varnish. In 1851 Gould had hired William Matthew Hart (1830-1908) to assist in making the patterns for the birds and to do the metallic colouring on the plates, and as his colourist Gabriel Bayfield was getting too old, Hart finally took over the colouring in 1861. Gould had even tried unsuccessfully to bring a hummingbird home alive from his trip to America in 1857 where he had gone ostensibly to see live hummingbirds but also to meet collectors and solicit subscriptions for his book. His son Charles reported that when his father, always a whirlwind of activity, visited Niagara Falls "there being no hummingbirds in the neighbourhood, and no savants, Mr. Gould found the beauty of the falls alone insufficient to attract him more than a few hours, so we started off again...(Sic vita Gouldi Johnni)" (quoted in Sauer: 55). The hummingbird work had about three hundred subscribers and by the time it was complete it is estimated that 108,000 plates for this publication had been printed and hand-coloured. Saverell Sitwell in his *Fine Bird Books* (1953) thought the work was Gould's masterpiece both for the enormous numbers of species shown and the depiction of the exquisite shapes and plumages of these tiny birds.

In all, Gould had produced four works on birds of the Americas, and he went on to publish several other works after the hummingbirds. Gould was criticized by contemporaries for lack of knowledge of British birds particularly and he was afraid to commit himself on Darwin's theories for fear of losing subscribers. Others thought his work was sometimes too strongly coloured or too studied in effect, characteristics which detracted from scientific accuracy, but no one can deny him his accomplishments in depicting the richness of the world's bird life. When Henry Sotheran bought Gould's stock at his death, thirty tons of parcels of original drawings and copies of prints in pristine state were transferred to his premises, — stunning evidence of the extraordinary activity of the man.

Many others produced important books illustrated with hand-coloured lithographs in the middle and latter part of the nineteenth century. Joseph Wolf (1820-1899) dominated much of bird illustration at mid-century. Born near Coblenz, Germany, he was apprenticed to Gebruder and Becker, a firm of lithographers. By 1840 he had begun to concentrate on his own art, taking an interest in the habitat and background for his wildlife paintings. He insisted on working from life and nature as much as possible, and he realized the importance of knowing the stance and flight of a bird. In 1848 when he emigrated to England his reputation had preceded him and he was soon in great demand as an illustrator. He worked for Gould on *The Birds of*

Asia (1850-83) and *The Birds of Great Britain* (1862-73), supplying 24 and 55 plates respectively. He was especially good in depicting birds of prey. Wolf had some reservations about his work for Gould as he thought that Gould overcoloured his illustrations, and he was not always satisfied with the plate design and the addition of so many plants to the illustration. Wolf became the first significant artist to publish work in the new scientific journals: he did 70 plates for *Ibis* from 1859 to 1869 and many more for some 300 issues of the *Transactions and Proceedings of the Zoological Society*.

In 1865 Wolf began to work for Daniel Giraud Elliot (1835-1915) and produced some of his finest illustrations in these elephant folio volumes. Elliot was a wealthy American who was also a naturalist and artist and one of the founders of the American Museum of Natural History in New York. Elliot's work is interesting because it bridges the publishing from the Old and New Worlds. Although he used British artists, some of his work was printed in the United States and some in Britain. He had Wolf draw many of the birds of prey, water fowl, and grouse for *The New and Heretofore Unfigured Species of the Birds of North America* (1866-9) which was superlatively printed by J.T. Bowen & Co. in the United States. The plates of gyrfalcons are splendid examples of Wolf's ability to capture poses, facial expressions, and details of feathering. Wolf's other outstanding works were the plates for Elliot's great *A Monograph of the Phasianidae, or Family of Pheasants* (1873) in two elephant folio volumes and later the 37 plates for *A Monograph of the Paradiseidae, or Birds of Paradise* (1873), both of which were printed by M. & N. Hanhart in Great Britain. Elliot paid tribute to Wolf's artistic abilities in his dedication in the book on pheasants: "To Joseph Wolf ... whose unrivalled talent has graced this work with its chief attraction and whose marvellous power of delineating animal life renders him unequalled in our time." The compositions for these plates are fairly basic with only modest backgrounds but the plumages and subtle richness of the colours that allow all feather patterns to stand out are superbly done. Wolf's oeuvre was very popular and several hundred of his drawings were copied in wood engravings for a variety of small bird books.

CHROMOLITHOGRAPHY

The development of colour printing techniques from wood blocks, metal plates, and lithographic stone progressed in tandem in the first half of the nineteenth century. No sooner had a successful business been established and demand created for hand-coloured lithographs than there was an interest in reducing the onerous work of hand-colouring by developing colour printing methods. Engelmann & Co. had

patented chromolithography in 1837 but Hullmandel who worked for them developed a similar idea called lithotint which was effectively an aquatint from stone and an intermediate process between lithography and chromolithography. Lithotint consisted of graduated tints with the scraping down of the white highlights. Hullmandel also invented a method of brushing liquid ink onto the stone. He used this in George Gray's *Genera of Birds* (1837-44), but the colours were essentially used for the backgrounds and much of the bird was still hand-coloured. In fact illustrations produced by these early colour printing processes almost always had some hand-colouring added to increase the intensity of a certain colour or the sheen of certain feathering. Most of the early colour printing processes, if not enhanced, produced a dull and muted effect such that the illustrations often lacked a sense of life.

Full chromolithography meant colour separation and proper registration. This involves successive additions of colours from separate plates, one for each colour, and anywhere from six to twenty stones may be used to create the final mix of colours and tones. There was resistance to adopting chromolithography and rightly so as the quality of the reproduction varied considerably. Although chromolithography was employed for some bird books by the 1870s and 1880s, the hand-coloured lithograph continued to be used, although increasingly in combination with some colour printing. Printing in colour was expensive and in consequence the first illustrations and/or books were octavo or smaller in size. There were a few chromolithographic printers in Britain but some of the best, such as Greve of Berlin, were on the continent. M. & N. Hanhart, Mintern Brothers, and Chromo-Litho Art Studios were the main British firms producing chromolithographic illustrations for bird books.

It is curious that Joseph Wolf was the first bird artist involved with chromolithography. Wolf is best known for his life-size illustrations of birds of prey and pheasants in elephant folio books and yet is represented in *Poets of the Woods* (1853), the first bird book printed by chromolithography, by no more than tiny vignettes of sparrows or goldfinches on pages decorated with gold and white designs. This work was the first of two books of poems issued anonymously but in fact edited by Joseph Cundall and illustrated by Wolf and published by Thomas Bosworth in London. *Feathered Favourites*, the second book, appeared in 1854. Both had twelve chromolithographs printed by Hanhart. However the colour printing was muddy and many of the vignettes have been improved by hand-colouring.

During the latter part of the nineteenth century other artists, also emigrants from Europe, slowly took over Wolf's role in lithography and then in bird illustration. And by century's end their work was being reproduced by chromolithography. The most prominent of these artists is probably John Gerrard Keulemans (1842-1912).

Born in Rotterdam, Keulemans came to London in 1869 at the behest of Richard Bowdler Sharpe to work on his book on kingfishers. Keulemans had the most voluminous output of any nineteenth-century bird artist and his work is found in thirty-eight books and at least five journals in the period from 1870 to 1900. He was less of a painter than Wolf and more of a museum artist. His style remained unchanged throughout his career and his plate design was somewhat similar to Gould's. Birds are shown in fairly static poses on branches often with little background work. Keulemans drew from skins and stuffed specimens and, like others at the time, worked on an immense number of bird families from all over the world as specimens continued to pour in. In this situation, a very careful bird artist was needed to show small differences between similar species. Keulemans' versatility shows particularly in the 160 plates he did for more than nine of the twenty-seven volumes of the British Museum's *Catalogue of Birds* (1874-98). Frequently he worked directly on the stone or transferred the drawing to the stone himself. He also did work for *Ibis*, taking Wolf's place in 1869, and he continued to supply illustrations for this and other journals until 1909. He did several excellent drawings and lithographs for the second volume of George Rowley's *Ornithological Miscellany* (1877). One of these is the Labrador Duck, by then extinct, splendidly shown in an Arctic habitat. This was lithotinted with hand-colouring added.





Archibald Thorburn's Barn Owl from Lord Lilford's Coloured Figures of the Birds of the British Islands (1891-7) Vol. I Plate LI. Courtesy of the Blacker-Wood Library of Zoology, McGill University.

Keulemans also contributed the first 125 hand-coloured plates for Lord Lilford's (1833-96) *Coloured Figures of the Birds of the British Islands* (1885-97). Lilford's work was produced in seven volumes with 421 plates in all, three-quarters of which were chromolithographed. It is a major work and considered to be the finest example of chromolithography for ornithological illustration produced in

Great Britain. Several printers contributed to the chromolithography of the Lilford work, the best work being done by Greve of Berlin and Chromo-Litho Art Studios. Despite the magnificence of this work, Lilford attempted to put it within the reach of ordinary people by contributing £15,000 of his own money to the book so that the purchaser only paid 47 to 60 pence per part for each of the thirty-six parts. Lilford also contributed money to support colour illustrations in *The Ibis* during its early years. Most of the remaining plates in Lilford's work were done by Archibald Thorburn (1860-1935). Thorburn was a major bird artist at the turn of the century and excellent at depicting game birds, owls, and ducks with detailed habitat backgrounds. His work was a turning point in animal art as he was the first to understand ambient light and its effect on colour and shading for the bird. In both Lilford's work and his other works such as that in J.G. Millais' *The Natural History of the British Surface-Feeding Ducks* (1902) he shows the bird integrated in the landscape rather than propped against it.

Opposite page:

The Labrador Duck by J.G. Keulemans from George Rowley's Ornithological Miscellany vol. II (1877). Courtesy of the Royal Ontario Museum Library.



1. *Turdus. Melodius* Wood Thrush. 2. *Turdus. Migratorius* Redbreasted Thrush or Robin.

The American Robin and other birds from Alexander Wilson's American Ornithology (1808-14) volume 1, plate II.

CASE 5

THE *AMERICAN EXPERIENCE: WILSON, AUDUBON AND THE FIRST HALF OF THE NINETEENTH CENTURY*

IN THE EARLY NINETEENTH CENTURY, just before the beginning of the great period of British and European ornithological book publishing, two American author/artists made significant contributions to American bird art and achieved international reputations for their publications — Alexander Wilson and John James Audubon. Wilson is a crucial figure because he was the first to collect and draw birds, write an ornithology of American birds, and have it engraved, printed, and published in the United States at the very beginning of the nineteenth century. Audubon did the same travelling, collecting, and drawing birds, although he started a few years later than Wilson, but he was forced to go to Britain to have his life-size drawings engraved and published. Other works, such as that by Charles-Lucien Bonaparte, which he designed to be a continuation of Wilson, were published in the next twenty years, while Audubon reissued his great work in a smaller royal octavo format between 1840 and 1844. By 1832 the first small illustrated manual of American birds had been published by Thomas Nuttall. These four authors or author/artists in fact mirrored the British evolution in printing techniques — the first two used engraving, but by 1839 Audubon was using lithography and Nuttall was able to use wood-engraving to provide smaller, cheaper books for the general public. All of this was accomplished before 1850.

Artistically, the work of Alexander Wilson (1766 – 1813) lost out to the glories of Audubon's bird illustrations but it may have had almost as much impact because of the quality of his writing and the work's status as the first all-American treatise on American birds. Elliot Coues thought that all pre-Wilsonian writing should be scrapped, while Casey Wood indicated that Wilson's work was thoroughly exploited by those who came after (Wood: 630). Even Audubon though aware that he was a better artist than Wilson seems to have copied several of Wilson's birds — the Mississippi Kite, the Cerulean Warbler, the Red-winged Blackbird, and the Peregrine Falcon, one of Wilson's last and perhaps his best plate. Born in Paisley, Scotland, Wilson emigrated to the United States in 1794. He worked as a teacher near Philadelphia close to the noted naturalist, William Bartram, and he began by studying the bird specimens in Bartram's collection. He taught himself to draw and since

the available bird books were so poor he determined to travel throughout his new country and put together a collection of drawings of all its birds. He tried to learn to etch from another emigrant Scot, the experienced engraver Alexander Lawson (1772-1846), but in the end left this work to Lawson in whose judgement he had complete faith. By 1807 Samuel Bradford, a prominent Philadelphia publisher, had agreed to publish Wilson's proposed work and a prospectus was issued to attract subscribers. Wilson intended *American Ornithology* (1808-14) to be in ten volumes, six on land birds and four on water birds, and he set as his goal a work that was to be instructive and pleasurable to read and would correct the mistakes of European writers and "draw the attention of fellow citizens ... to a contemplation of the grandeur, harmony and wonder of Nature." Wilson's text was a masterful piece of writing but it was also scientifically done. He took his table of the orders and genera of the birds from John Latham, but on the plates his birds were not grouped by families but in the order in which he had received specimens and completed the drawing. The engraving was done mainly by Lawson, with some work by J.G. Warnicke. Generally, the engravers had Wilson's sketch to work from or Wilson cut out his sketches and laid them out for the plate. In the early period Lawson frequently worked from only an outline, filling in details from a specimen of the bird. Alexander Rider did much of the colouring, and Wilson frequently shot fresh specimens so that the colouring would be truer. However, Wilson had a considerable problem with his colourists who never seemed to work to his specifications. He was an inveterate worker and towards the end of his life actually coloured approximately 4,500 plates himself. By 1813 he had reduced the number of volumes to nine but he continued to collect specimens, solicit subscribers, and make drawings. He had almost finished volume eight when he died and the last two volumes were completed by George Ord (1781-1866), one of the founders of the Academy of Natural Sciences in Philadelphia and an amateur naturalist.

Wilson drew 320 figures of 262 species of birds on 76 plates for volumes of imperial quarto size. Of these, 39 were new to science, including 10 warbler species, and 23 were better described so that they could be distinguished from European species. Catesby's book of 1731 had illustrated about 175 birds and of course other British books had increased the number of known species. Wilson, for instance, frequently cited Pennant's *Arctic Zoology*. Wilson had other sources besides his collecting expeditions. He worked some of the time from stuffed specimens in Peale's Museum of Philadelphia which had been set up by the noted artist Charles Wilson Peale in 1784. Wilson had tried but failed to get himself on one of the western exploration expeditions which generally did not have naturalists accompanying them at this time, and he only received three new specimens from the Lewis and Clark

expedition. These were the Western Tanager, Lewis' Woodpecker, and Clark's Nutcracker which are shown together on one plate. At \$120 per set, Wilson's work was costly for the time and he had difficulty getting subscriptions despite personal support from Thomas Jefferson. In the end, 459 subscriptions were sold, one-quarter of them in Pennsylvania. As a result of his costs, Wilson could never contemplate having only one species per plate; his plates illustrated from two to eight species, usually combining large and small birds. Wilson was not a great artist and his plates are not well designed. Some of his individual birds are reasonably well drawn and he did pay great attention to plumage and to characteristic poses, but the few backgrounds are out of proportion to the birds. Indeed, the success of some of the illustrations seems to have depended on the skill of the engravers. In the prefaces to his volumes Wilson discusses the problems of getting the volumes out on time, and the need to have an engraver correcting the artist's mistakes. Oddly enough, his last plates for volumes eight and nine were more carefully finished in details than earlier plates and it is tempting to consider that Ord, who apparently had to hire another artist to finish the work, may have had Rider finish them (Allen:565, Egerton:134).

Contemporary reviews of Wilson's work were generally favourable and reviewers were particularly proud that it was an American publication. Charles-Lucien Bonaparte said that Wilson had produced an ornithology which for coverage of a particular avifauna had not been equalled in Europe at that time. Wilson's work appeared in several later editions (until 1878), but the original plates were only reprinted in the edition of 1828-9. That edition was edited by George Ord who rearranged the work to put it in systematic order. Jardine also produced a small edition of Wilson's *American Ornithology* in 1832 with a biography, portrait, additional notes, and small copies of his illustrations.

Charles-Lucien Bonaparte (1803-1857), a nephew of the Emperor Napoleon, was a collector and a natural history scholar who came to the United States in 1822 nine years after Wilson's death. Soon after, he began to issue the first part of *American Ornithology or the Natural History of Birds Inhabiting the United States Not Given by Wilson*. The illustrations were from drawings by Titian Ramsay Peale (1799-1885), the son of Charles Wilson Peale, and by Alexander Rider. Peale began by working in his father's museum, learning to draw and preserve specimens. He later joined several collecting expeditions to the southeast and the Missouri River and at Bonaparte's behest set off for Florida to collect specimens and drawings. Bonaparte's work, in four volumes with 27 plates, was published by Samuel Augustus Mitchell and Carey, Lee & Carey between 1825 and 1833. Once again Alexander Lawson did the engraving and Rider coloured the plates. Bonaparte used a layout similar to Wilson's with three or more birds per plate and little background except for tree

branches. Although about 39 of his birds were not in Wilson, another 17 were females or juveniles which Wilson had not included. Several new birds had just been identified and/or were being illustrated for the first time including the Western Kingbird, the Burrowing Owl, and the Say's Phoebe. Another plate depicting the "Great Crow Blackbird" or Boat-tailed Grackle, was from drawings by Audubon whom Bonaparte had met when Audubon was in Philadelphia looking for a publisher.

No exhibit of American bird art would be complete without the work of John James Audubon (1785-1851) who is certainly the best known American bird artist and remarkable for the new approach he brought to bird art in the first half of the nineteenth century. Born in Haiti, Audubon was brought up in France and is reputed to have studied with the great painter, Jacques-Louis David, or one of his pupils. By 1806 he had settled in the United States and was involved in various, unsuccessful business ventures. To make money he began drawing portraits and birds. By about 1820, encouraged by admiration for his work, he developed the idea of publishing a book of life-size portraits of American birds including scenes of their natural habitat. For the next six years he travelled from Florida and Texas in the south to Labrador in the north collecting specimens and drawing birds and habitat. He used newly killed specimens as much as possible, and he devised a way to draw the bird as if from life by rigging the specimen up on wires and then drawing it against graph paper. By 1826 Audubon was in Philadelphia, then the publishing hub of the United States, searching without success for engravers and a publisher. George Ord, as a supporter of Wilson's work, was hostile to him and Ord and Lawson were also about to publish a new edition of Wilson. Moreover, Lawson said it would be impossible to engrave from Audubon's water-colours as they were too soft and too much like oil paintings: they lacked the strong black linework that engravers usually required at the time. Lawson also considered the paintings to be too large and believed they would have to be reduced. In reality, Audubon's large work was probably beyond the capabilities of the American engravers, printers, and publishers of the time. Bonaparte, although already launched on his own sequel to Wilson's work, was somewhat friendlier but he advised Audubon to seek publication in Europe.

Audubon left for Great Britain and at first sought out the engraver W.H. Lizars in Edinburgh, on the advice of William Swainson and other bird artists. Later, when Lizars had a labour dispute in his shop, he moved on to Robert Havell, Jr., an aquatint and line engraver. It took Havell twelve years to do the work and *The Birds of America*, the great double elephant edition, was published in 87 parts between 1827 and 1838, with a total of 1065 bird figures on 435 aquatinted plates. The whole work included a record number of new species, and Audubon illustrated 500 of the approximately 650 species regularly found in North America. Audubon had help

The Cerulean Warbler from Audubon's Birds of America (1840-44) vol. 2 Plate 86.

from other painters such as George Lehmann, a landscape artist from Lancaster, Pennsylvania, from Maria Martin, and from Joseph Mason for backgrounds and foliage. He was also assisted by his sons, John Woodhouse and Victor Gifford Audubon. Since Audubon's original paintings have survived we can see that while some of his water-colours were finished works including backgrounds, in others he had only drawn the bird and Havell himself helped to provide some of the backgrounds. Finally Havell or Audubon and his sons closely supervised the numerous colourists, a difficult job at the best of times.



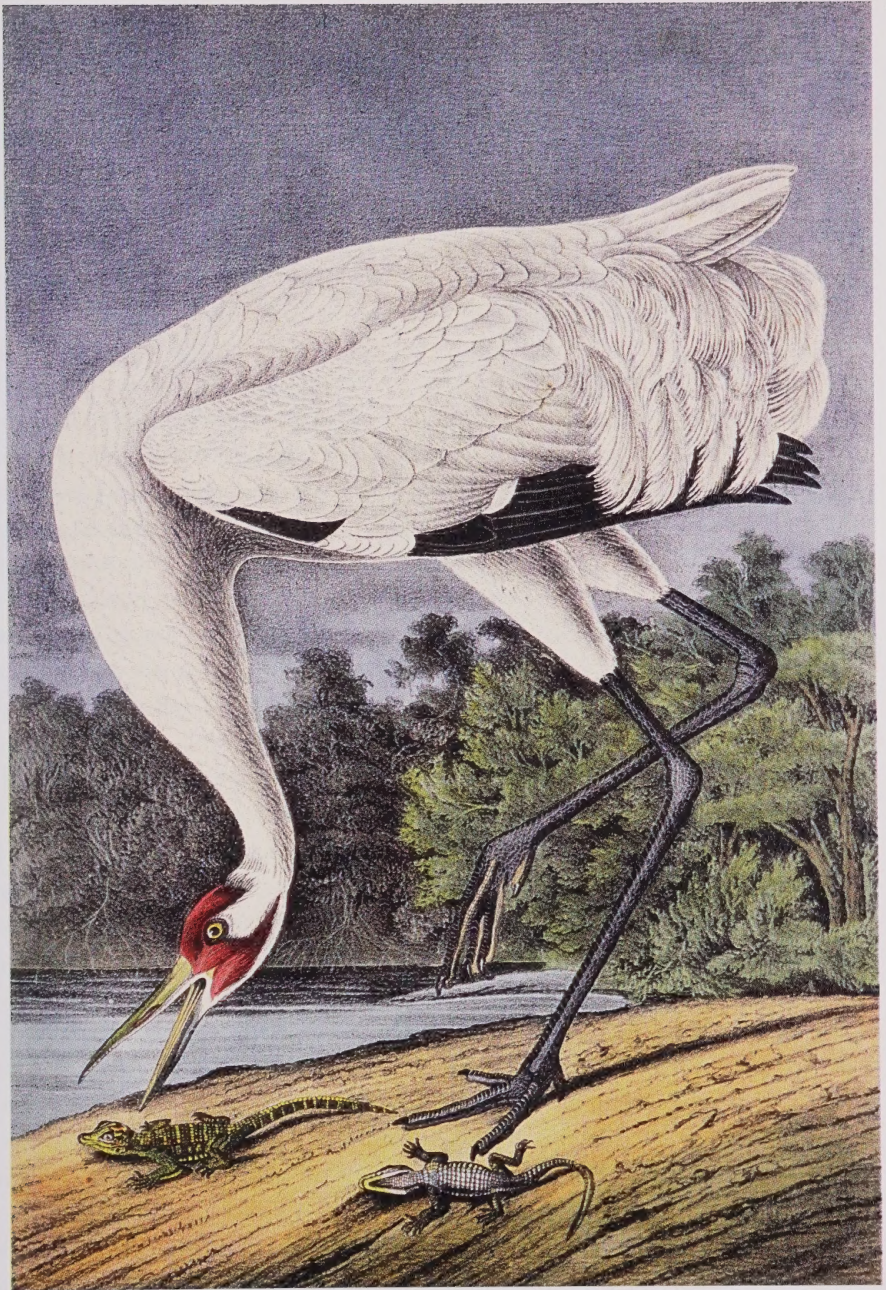
Audubon broke new ground with his work by showing birds in very active poses to display plumage and to give the sense of a live bird. Because the birds were shown life-size, the biggest birds had to be drawn with necks arched in what has seemed to be unnatural positions just to get them on the plate. Audubon has been criticized for this, but he demonstrated a superb decorative sense and in reality captured the bird brilliantly in motion. The main bird or birds are always shown at eye level and in the foreground so as to dominate the picture. The larger birds are almost walking out of the frame. Audubon's command of feather texture and the aquatinting and colouring of the plates was superb. This was the largest collection of plates on birds ever published. It was also the last and most magnificent product of the engraving/aquatinting processes, appearing just at the moment when they were being supplanted by lithography. With some truth, Swainson, writing in the *Natural History Magazine* for May 1828, stated that with Audubon's work the mantle of great bird art, long unclaimed, had "at length been recovered in the forests of America".

The University of Toronto Library once had one of the some 200 copies of the great *Birds of America* but it was burned in the fire at University College in 1890. However, the Thomas Fisher Rare Book Library does have the smaller royal octavo edition of *The Birds of America* which Audubon published in Philadelphia (1840-4). This work was produced by lithography and hand-coloured and as a result it is a

work with a totally different feeling from that of the double elephant edition. Audubon had the idea of doing an edition in a smaller format in order to recoup some of the large outlay of funds that the great work had required. During the period when he was preparing the larger work, he was constantly afraid of someone pirating his work and he kept his plans quiet during the early 1830s. While he was finishing the folio, he wrote to his son suggesting that for a smaller format edition perhaps they could just cut down the margins of the plates of smaller birds and retouch them and then redraw and re-engrave the middle size and larger birds and perhaps not even colour them. He also wrote of wanting to include his text from *Ornithological Biography* (1831-9) with the plates. He considered wood (thinking about a book the size of Bewick's), steel, or copper for the plates; however, by 1835 he realized that lithography was the answer both for economy and because he wanted to use colour.

As soon as the great work was finished, Audubon returned to Philadelphia and immediately began work on the smaller format edition, in part to secure American copyright. His major decision was what technique to use and when Robert Havell, Jr. refused the job of engraving, he quickly arranged with John T. Bowen of Philadelphia to do the lithography and to colour the plates. John Woodhouse Audubon did the reductions from the aquatinted prints (and sometimes from Audubon's original drawings) using the camera lucida. This is a glass prism positioned in such a way that the image of the original is projected onto a piece of paper in reduced format. The tracings were then transferred to stone mainly by the lithographers Ralph Trembley and William E. Hitchcock. The colouring was done by a group of largely female colourists, with each person being responsible for one colour. Finally, it was arranged that J.B. Chevalier would be co-publisher on the project and business manager with Victor Audubon representing Audubon's interests, while John James himself again went on the road to sell subscriptions. The royal octavo was issued in 100 parts of five plates and text, each at \$1.00 per part, and eventually bound into seven volumes which were sold to new purchasers at \$125 per set. At one-tenth the cost of the larger edition, it was easy for Audubon to sell. The work was so successful that Audubon more than tripled the number of copies printed from 300 to 1050, while it was being issued. Considering the costs of producing the work, he probably made a profit of more than forty cents per part.

Despite the grandeur and success of the double elephant edition, there had been problems with it which Audubon was able to correct in the smaller format edition. Although the first 370 plates of the large edition generally had one species per plate as Audubon had intended, the birds were shown in no systematic order but, as with Wilson merely in the sequence in which originals were ready to be engraved. Moreover, the last 65 plates were not as good as the earlier ones because



The Whooping Crane from Audubon's Birds of America (1840-44) vol. 5 Plate 313.

Audubon had to show up to five or six species in each plate to accommodate all the birds. In many of these plates backgrounds were non-existent or highly artificial and repetitious tree limbs. In the smaller edition, Audubon rearranged the birds into systematic order following his *A Synopsis of the Birds of North America* (1839) and he interspersed the illustrations with the text from *Ornithological Biography*. He also returned to his original plan of having only one species per plate, and the multiple groupings were broken up to form several plates, each of which was much better designed. In addition, there were seven new species and seventeen species for which there were no illustrations in the larger work; all had to be newly drawn for this edition. As a result there were 500 plates in the royal octavo edition, 65 more than in the large edition. Many of the single bird plates were now quite simple but very effective. On some plates, such as those for the Mockingbird and the Carolina Parakeet, the number of birds was reduced to suit the smaller format better. Frequently some of the plant and tree backgrounds were slightly reduced as well. Audubon also was able to remedy some of the errors in the larger work by putting males and females together on the same plate. Some birds were redrawn. In most instances, the larger birds are shown proportionately smaller on their plate and often the landscape portion was actually increased. Thus they are no longer pushing at the edges of the frame and the impact is lessened. In a few cases, such as that of the Whooping Crane, Audubon did the reduction himself and the result was considerably better than his son's work. Many of the new drawings were of western birds sent to him by various collectors and some like the "Missouri Meadow Lark" came from his 1843 trip up the Missouri River. The general effect is that the smaller birds are more interesting in this work as the foliage is reduced and they show to better advantage on the smaller plate while the larger birds are not as exciting. The octavo edition was well received in America and was reissued several times. The royal octavo edition is thus a major work in its own right and at last brought Audubon honour and fame in his own country.

It is interesting to realize that the first small manual or handbook of American birds was being produced in the United States before Audubon had finished issuing his great double elephant edition. Thomas Nuttall (1786-1859), an Englishman, who was both a botanist and ornithologist had trained originally as a printer. He went to America in 1808 and travelled extensively throughout the continent studying nature and collecting mainly botanical specimens. From 1822 to 1834 Nuttall was a professor at Harvard University where his interests moved to ornithology. His work on birds, *A Manual of the Ornithology of the United States and of Canada*, comprised two volumes, the first on land birds appearing in 1832 and the second on water birds in 1834. The work was published in Boston by Hilliard & Brown (in fact James

Brown had suggested the idea of the book to Nuttall) and later by Hilliard, Gray & Co. It was illustrated with uncoloured wood engravings by Abel Bowen (1790-1850) of Boston, and John H. Hall, a wood engraver working for Carter, Andrews & Co. of Lancaster, Massachusetts. In the second volume Nuttall stated that the illustrations were more uniform and correct and all in that volume were by Andrews & Co. of Boston, probably again engraved on wood by Hall. Of the 113 illustrations about half were copied from Wilson and a few were copied from Audubon and Bewick. Audubon also supplied Nuttall with information from his trip to Labrador for the second volume on water birds. Considering that Audubon's large work was only partly issued at this time and that the plates were so large, it would have been difficult for the engraver to use them as



'The Washington Eagle' copied from Audubon's work for Thomas Nuttall's Manual of the Ornithology of the United States and Canada (1832) vol. I p. 67. Courtesy of the Royal Ontario Museum Library.

a source, but in some cases Nuttall comments on how good Audubon's image was. The "Washington Eagle" (in reality, an immature Bald Eagle) is from Audubon's large work, while the Peregrine Falcon is copied from the last plate in Wilson's work. Backgrounds were added to many of the copied illustrations, and these are reminiscent of Bewick with charming rural scenes predominating. Nuttall's work went into a second edition in 1840 and was later reissued by the Canadian, Montague Chamberlain. Nuttall eventually returned to England in 1842 to take up an inheritance. He was later honoured by having the first American ornithological association named after him — the Nuttall Ornithological Club of Cambridge, Massachusetts, founded in 1873.

CASE 6

AMERICAN ARTISTS AND PUBLICATIONS 1850 TO 1930

IN THE SECOND HALF of the century the American government played an increasing role in ornithological publishing by sending out a variety of expeditions to collect birds, both on the continent and in nearby countries and oceans. The government then subsidized the publication of reports from these expeditions which were illustrated by hand-coloured lithographs or chromolithography. While Audubon and Wilson had been primarily artists and amateur naturalists and Bonaparte a patron of such individuals, it was now scientists who played the major role in discovering new species, writing descriptions, and identifying subspecies. The illustrations in their works were sometimes done by well-known artists such as Titian Ramsay Peale but more frequently by relatively unknown artists. Much of the wood-engraving and lithographic printing in the early part of the period was done by J.T. Bowen of Philadelphia; later the chromolithography was done by a variety of firms. The outstanding scientists and authors of this era were Spencer Fullerton Baird, John Cassin, George N. Lawrence, and Thomas M. Brewer. Expeditions were sent to such varied destinations as the South Pacific, Japan, Chile, and Labrador, and several



Le Conte's thrasher by J.L. Ridgway in *the Auk* vol. XII (1895).

expeditions were launched to the western and southwestern United States to survey routes for transcontinental railroads. In addition, there was a rush to publish works for individual states or regions. Many of these were illustrated, and by the end of the century works on specific bird families also appeared. The coloured illustrations in these works were often accompanied by small wood engravings to detail comparisons among the heads, beaks, or feet of different species. Journals were established and many of them included coloured illustrations, either hand-coloured or chromolithographed. In the twentieth century another spate of state bird books appeared, and many of them were illustrated by better artists than in the early period. Louis Agassiz Fuertes, one of the best of these artists, dominated the field of bird illustration in the first quarter of the twentieth century, and had a strong influence on many later artists. There were so few good illustrators at this time that some worked in both the United States and Canada. Allan Brooks, an Englishman who emigrated to Canada, illustrated many American bird books from the turn of the century on; so did the Canadian Ernest Thompson Seton though his output was not so large. Later, George Miksch Sutton and Roger Tory Peterson, both Americans, illustrated books on Canadian birds.

Techniques evolved. In the last quarter of the nineteenth century zinc replaced stone in lithography, which made production much less expensive. The metal half-tone plate (which broke up the image into dots) was also invented and this made it possible to reproduce the artist's original work by a photographic process. The development of the three- and four-colour processes soon followed. The colour in the original work was laid down by separate plates for red, blue, and yellow. These new techniques of reproduction made the artist's task less onerous. Gone was the necessity to have the work re-engraved for lithographic reproduction and the artist could work directly in his own technique such as oils or opaque tempera. However the actual implementation of half-tone and colour printing and the quality of the glossy papers used in the early period were so poor that the final product frequently did not do justice to the art in terms of either clarity or faithful colour reproduction. This decline was perhaps partly encouraged by the interest in the use of photography in recording birds. In the early twentieth century, bird artists in both America and Britain were also changing their approach to their work: they began to paint the personalities of birds, to enliven their work by better compositions, and to paint the bird as a part of the landscape. None of these people were well served by the inferior reproduction processes which were coming into use.

By mid-century, perhaps spurred on by the American edition of Audubon's work, new ornithological works began to appear in the United States. John Cassin (1813-1869), a Philadelphia ornithologist, issued his best work, *Illustrations of the*

Birds of California, Texas, Oregon, British and Russian America, between 1853 and 1856 in ten parts. It drew upon the work of many expeditions to the west in the era before the Civil War. In 1851 Cassin had tried to strike a deal with Audubon's sons to produce an edition of Audubon's work with revisions and corrections to the text (which many scientists felt were essential) combined with a further three volumes of his own work on American birds with new illustrations. This plan fell through as Cassin had problems with printers, artists, and subscribers. Nor was he ever able to make a deal with the Audubons who among other things wished to retain their father's nomenclature. In the end Audubon's sons went ahead and published a new edition of the royal octavo *Birds of America* in 1856.

In 1852, however, Cassin had issued the first part of his work printed by Rosenthal's Lith. Press and with illustrations by Henry Louis Stephens (1824-1882), an artist attached at that time to the Academy of Natural Sciences of Philadelphia. This part was withdrawn because Cassin was dissatisfied with it, mainly because of the printer's work. In 1853 he began again with a new artist, George Gorgas White (d. 1898), a new printer (and certainly the best at the time), J.T. Bowen, and a publisher, J.B. Lippincott, to help with subscriptions and to distribute the book. Eventually Cassin became disenchanted with White and used William E. Hitchcock, a lithographer who worked for Bowen, to draw the birds directly onto the stone (Tyler: 109-12). The work was never financially successful because of competition from the new edition of Audubon, but it was important scientifically because it was the first American work to use trinomial nomenclature and it included three newly described species. Among the 50 beautifully hand-coloured illustrations were the first published images of several other birds such as the Greater Roadrunner, well presented by Hitchcock, and the now rare Kirtland's Warbler, first collected by Professor Jared P. Kirtland near Cleveland in the spring of 1852. Cassin was no stranger to engraving and lithography as he and Lavinia Bowen took over the management of Bowen & Co. after J.T. Bowen's death in 1856 and later produced the illustrations for many government and scientific publications. This may have been why John Wilkes asked him to produce the report of his 1838-42 expedition to the South Seas which was issued finally in 1858 as the mammalogy and ornithology section of the report, with an atlas of plates taken largely from Titian R. Peale's paintings from the expedition. The 42 plates were done by White and Hitchcock in addition to Peale and most were engraved by W.H. Dougall and then hand-coloured.

Spencer Fullerton Baird (1823-1887), who became assistant secretary to the Smithsonian Institution in 1850 and secretary in 1878, formed a marvellous collection of bird specimens at the museum. He was the prime mover in the establishment of ornithology as a science in the United States. A remarkable series of explorations had

been carried out in the western United States between 1853 and 1856, and fifteen survey groups sent mainly by the War Department but also by the Department of the Interior and the Department of State all collected birds. Baird was responsible for the ornithological reports in conjunction with two other scientists, John Cassin and George Newbold Lawrence. In *Reports of Explorations and Surveys to Ascertain the ... Route for a Railroad from the Mississippi River to the Pacific Ocean*, the section on birds formed volumes 9 and 10 and was issued in 1858-9. In 1859 Baird also issued "Birds of the Boundary" as part of the *Report on the United States and Mexican Boundary Survey*. He later took the texts and illustrations from both works to form his *Birds of North America*, published in New York in 1860 by D. Appleton & Co. in two volumes with 100 illustrations. This book, like the earlier reports, covered much of the continent and was a major work of North American ornithology. It provided the first major revision of nomenclature and description of birds since Audubon. The count of known birds in North America had now risen to 738 and generally



The Greater Roadrunner from John Cassin's Illustrations of the Birds of California (1853-6) Pl. 36.

only the recently discovered or previously poorly illustrated birds were depicted in these several works. In the railroad reports there were 38 illustrations by Henry Stephens, including the Hepatic Tanager and the Gila Woodpecker, lithographed

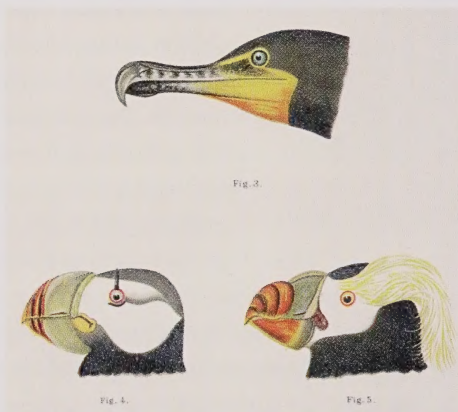
and coloured by Bowen & Co. The 25 plates in the Mexican boundary report are all of new birds. Unfortunately the artist is not listed but they are better drawn than those in the railroad report and attractive habitat backgrounds have been included.

By 1885 there was a federal organization dedicated solely to birds but it was a section of the Department of Agriculture and mainly investigated economic ornithology or the relationship of birds to agriculture. Some well-illustrated reports appeared including A.K. Fisher's *The Hawks and Owls of the United States in their Relation to Agriculture* (1893), with 26 attractive chromolithographed plates by John L. (1860-1947) and Robert Ridgway (1850-1929). The Ridgways were perhaps the most prominent American bird illustrators in the last quarter of the nineteenth century and their work appears in many publications. Several states had involved themselves with economic ornithology and bird studies, resulting in many publications. The states that published the best and most comprehensive works on scientific

ornithology in the nineteenth century were New York, Pennsylvania, Illinois, Kansas, Minnesota, New Jersey, and Indiana. It is interesting to look at the range of illustrative methods for these works. Although James DeKay's work on New York birds included 141 hand-coloured plates, illustrations were generally not a primary feature of the books: that on Pennsylvania used poor copies from Audubon, those on Kansas and New Jersey photos of mounted birds, and that on Minnesota was not illustrated at all. Although Robert Ridgway's *Ornithology of Illinois* (1889-95) was one of the better works, it had only 65 wood-engraved plates by Edward or Edwin W. Sheppard and Henry H. Nichols from "cuts loaned ... by the Smithsonian Institution" and one chromolithographed frontispiece by the author. One of the best-illustrated reports of the latter half of the nineteenth century was Edward W. Nelson's *Report upon Natural History Collections Made in Alaska* which was issued by the United States Army in 1887. This included several chromolithographed illustrations of birds jointly done by the Ridgways and plates of heads of such bird groups as puffins and other sea birds drawn by Nelson himself. Popular works such as Jacob Studer's *The Birds of North America* (1874-8) with chromolithographed illustrations by Theodore Jasper and Charles Maynard's *The Birds of Eastern North America* (1879-

80) illustrated by the author went through many editions or offshoots in the latter part of the nineteenth century attesting to the general interest in bird books.

Journals became of great importance for reporting new species and producing revised and more scientific accounts of other species. Many illustrators produced some of their best work for these journals and support for the publishing costs of the colour illustrations were sometimes underwritten by commercial or even government sources. Elliott



Heads of sea birds by E.W. Nelson from his Report upon Natural History Collections Made in Alaska (1887) Plate II

Coues, in his article on the Baird's Sparrow, in *Bulletin of the Nuttall Ornithological Club* (volume III, 1878) thanked the firm of Thomas Sinclair & Son of Philadelphia for underwriting the costs of the chromolithography for Sheppard's illustration. This was apparently the first illustration of the bird from a decent specimen, an earlier and poorer one having been used by previous naturalists and artists including Audubon. The *Bulletin* (founded in 1876) later became *The Auk* and had many good

illustrations produced by chromolithography and related techniques in the latter part of the century. One excellent example is the pair of LeConte's Thrashers by John L. Ridgway beautifully depicted in an appropriate desert landscape which appeared in 1895. The image was printed by A. Hoen & Co., Lithocautic, of Baltimore. Other magazines with illustrations included *Birds* started by the Nature Study Publishing Co., Chicago, in 1896, a monthly serial designed to promote knowledge of bird life in schools, and *Bird-Lore* which was begun by Frank Chapman in February 1899. Bird illustrations also appeared in general magazines such as the *Atlantic*, *Scribner's* (Century), and *Harper's*.

One curiosity in American bird illustration was Abbott H. Thayer's (1849-1921) theory of colouration in birds. This was articulated most fully in the book he produced with his son Gerald: *Concealing-Coloration in the Animal Kingdom: An Explanation of the Laws of Disguise through Color and Pattern* (1909). His theory was based on the principle of countershading under which many animals in the wild seem lighter above and darker below because sunlight strikes the upper surface and lightens it while the shadows reflected from the ground seem to darken the underneath area. The overall effect is to diffuse light and blend the object with the background. Thayer proposed that the colouring of birds is thus frequently such that they do blend in with the background. He was greatly criticized for his theories because although some birds, such as the grouse, are coloured to blend with their backgrounds others, such as the cardinal, are not. The painting of the grouse in his book was done from photographs of a mounted specimen placed against a forest diorama. To illustrate his principle he included an overlay sheet cut to expose only the bird; when this was lifted the bird seems to disappear into the background.

Louis Agassiz Fuertes (1874-1927) was the pre-eminent American bird artist in the early twentieth century. Born in Ithaca, he went to Cornell and soon came to the attention of Elliot Coues and Frank Chapman who became his patrons and mentors. Chapman was the curator of birds at the American Museum of Natural History and the editor of *Bird-Lore*. He arranged for Fuertes to work on several habitat groups in the museum and encouraged him to include more habitat in his paintings. Fuertes took drawing lessons from Abbott Thayer and learned a lot from him about the use of light on birds and local colouring around the bird. However Fuertes did not fully accept Thayer's theories and pointed out that brightly coloured male birds might be useful in attracting predators away from the more cryptic female on the nest. Fuertes went on many expeditions, collecting and preparing specimens and sketching and painting in the field. Beginning in 1898 he went on trips to Florida, Alaska, the western United States, Saskatchewan and Alberta, the Gulf of St. Lawrence, Yucatan, Colombia, and Abyssinia. He had a strong empathy for birds



*Louis Agassiz Fuertes' Gyrfalcons from E. Forbush's Birds of Massachusetts (1925-9)
vol. 2 plate 42.*

and frequently was able to draw them from memory later in a day. He produced many water-colour sketches and habitat studies but only a fraction were published or even exhibited. Fuertes generally finished his paintings at home working from the field sketches, specimens, and sometimes photographs. In his illustration work, he generally did bird portraits, frequently concentrating on the head and front of the bird. He was a master at plumage. He did the illustrations for E.H. Eaton's *Birds of New York* published by the New York State Museum from 1910 to 1914 and contributed along with the Canadian Allan Brooks and other artists to J.C. Phillips' *A Natural History of Ducks* (1922-6). Fuertes did the 33 plates and text figures for Florence Merriam Bailey's *Handbook of the Birds of the Western United States* (1902) and the plates for her *Birds of New Mexico* (1928) — two of his best sets of illustrations — and he contributed to the *National Geographic*, *Bird-Lore*, and other professional journals. His last commissions, such as that for E.H. Forbush's *Birds of Massachusetts and Other New England States* (1925-9), which were some of his best work, had to be continued by others after his untimely death in 1927. Unfortunately Fuertes never had the chance to take up oils and produce more finished works of art as he had originally intended. His work as an illustrator meant that he had to produce compositions incorporating several bird species and sometimes these are not well designed. Moreover his reputation has suffered because some of his work in book illustration was undermined by poor colour and half-tone reproduction. As with many twentieth-century artists, the promise in his work is probably best seen in monographs devoted to his work in which modern photoreproduction techniques are used to reproduce his original water-colours.

Many new American artists in the first half of the twentieth century began to take the bird into the realm of landscape art. There is only space here to discuss the work of a few. Francis Lee Jaques (1887-1969) moved away from exact feather depiction and worked from the start on a much larger scale than Fuertes or Sutton. In 1903, at the age of sixteen, he sold his first drawing to *Field and Stream* and then worked for the next twenty-one years in commercial art, doing nature art in his own time. In the early period he worked largely in oils. Eventually he was hired by Frank Chapman in 1924 to do dioramas at the American Museum of Natural History where he remained until 1942. Later he did the same type of work at the James Ford Bell Museum in Minneapolis. Jaques' dioramas are generally acknowledged to be among some of the finest ever made. Here he worked in oils, developing his interest in depicting the atmosphere around a bird, a low horizon, and an expansive sky. His most significant illustrations were done for Arthur H. Howell's *Florida Bird Life* (1932), Robert Murphy's *Oceanic Birds of South America* (1936), and Alexander Sprunt's *South Carolina Bird Life* (1949). In the latter his skill in depicting birds in flight is

evident in his painting of the White Ibis. He also worked in the scratchboard technique producing charming monochrome illustrations with birds for several books written by his wife, Florence Page Jaques, such as *Birds Across the Sky* (1942) and *Canadian Spring* (1947).

George Miksch Sutton (1898-1982) was the first major bird artist who also had a doctorate in ornithology. Depicting birds was thus part of his own research and many of his illustrations were for his own books and journal articles. He published his first illustration in *Bird-Lore* at the age of sixteen and soon after began studying with Fuertes. His main expeditions were to Mexico and the Arctic and from the former he produced two beautifully illustrated works: *Mexican Birds* (1951) and *At a Bend in a Mexican River* (1972). He also contributed along with Allan Brooks, Francis Jaques, and others to several state books such as T.S. Roberts' *Birds of Minnesota* (1932). A trip to Labrador in 1920 was his first to the Arctic, and his doctoral research was on Southampton Island in the High Arctic. He tried to work as much as possible in the field: he often had an assistant holding the bird while he sketched it and then did field sketches of the background as well. His work on Arctic birds is like Jaques' work — landscape with birds — but his sketches are also studies in light and texture. He frequently included young birds in downy plumage as well. His best Arctic books were *Iceland Summer: Adventure of a Bird Painter* (1961), *High Arctic* (1971), and the illustrations for Walter E. Todd's *Birds of the Labrador Peninsula* (1963).

CASE 7

CANADIAN ILLUSTRATED BIRD BOOKS IN THE
NINETEENTH CENTURY

CANADIAN-PRODUCED illustrated bird books were slow to appear and after Pennant and Swainson there were no foreign-produced bird books in the nineteenth century devoted solely to Canadian ornithology. Various natural history societies and scientific journals were established in Canada around mid-century but the few articles on birds in these journals were not illustrated. A few catalogues of Canadian birds were published in the last half of the nineteenth century but they, too, were not illustrated. When locally produced bird books were published towards the end of the century, they were modest and wood-engraving was used for illustration. In 1881 J.W. Dawson, in an address to the Royal Society of Canada, drew attention to the lack of support for publishing and illustration stating that "the Canadian naturalist is often obliged to be content with the publication of his work in an inferior style and poorly illustrated, so that it has an aspect of inferiority to work really no better, which in the United States or the mother country has the benefit of sumptuous publication and illustration. On this account he has often the added mortification of finding his work overlooked or neglected" (quoted in Knight 1977: 59). Lack of government support in Canada for ornithological and natural history expeditions and publishing continued well into the twentieth century. However at this time publishing on birds was also slowly being divided into two streams, the scientific and the popular. Once most North American birds had been identified scientists were less interested in continuing to depict them generally in illustrations, and turned instead to small comparative or anatomical diagrams to illustrate their more specialized research. In the realm of popular publishing what was lacking in Canada was one or more of the following: a sufficient demand for natural history publications on the part of a small reading public, a good supply of local artists and engravers in Canada, a well-established colour printing industry to handle illustration, and the support from government for popular and educational studies with bird illustrations.

In the early part of the nineteenth century there were some illustrated works published in Britain by those who emigrated, lived for some time in, or travelled to Canada and observed birds. A few illustrations of birds were included in editions of Catherine Parr Traill's *The Backwoods of Canada*, first published by Charles

Knight in 1836. Although Traill did some of her own sketching, she did not produce any drawings for this work, and Knight commissioned a set of illustrations from the London firm of Sly, Wilson and Evans which did engraving for the *Library of Entertaining Knowledge*. Although Traill's book has about ten pages describing Canadian birds and she seemed to have a good knowledge of the common ones, some illustrations are incorrect and others do not seem natural to the Canadian backwoods. The "redbird" identified in the text of the first edition by the author as the "Virginian nightingale" (Northern Cardinal) is depicted in the illustration by an American robin or perhaps a thrush. Traill later complained that the illustrations were not authentic to Upper Canada and were miserable reprints from the *Penny Magazine* (Peterman: xlix). Philip Gosse's *The Canadian Naturalist* (1840) included four small and rather indifferently drawn birds sketched either by himself or "Mr. Dickes" and wood-engraved again by himself or James de Carl Sowerby. This was not, however, a book of ornithology but a more general natural history with considerable emphasis on entomology. W. Ross King's *The Sportsman and Naturalist in Canada* (1866) had three attractive colour illustrations of game birds drawn by W. L. Walton and chromolitho-graphed by Hanhart to accompany the four chapters on birds.

Two artist/naturalists working in Canada in the early part of the nineteenth century who never published their work were Charles Fothergill and William Pope. Fothergill (1782-1840) was born in England and came to Upper Canada in 1816 where he first established himself in the Rice Lake area and later moved on to Port Hope, Toronto, and Pickering, holding offices successively as postmaster, magistrate, king's printer and publisher, and member of parliament. He was a person with an extensive interest in the natural world and had published a small work on British ornithology when he was only seventeen. Fothergill established a significant collection of bird specimens and sent some to Thomas Bewick with whom he corresponded. He had begun a revision of Bewick's *History of British Birds*, making notes in an



interleaved copy. His main projected work was "Memoirs and Illustrations of the Natural History of the British Empire" which was to be illustrated with his own drawings and for which he had had some drawings

Charles Fothergill's water-colour of a Red-breasted Nuthatch, Fothergill Collection, Thomas Fisher Rare Book Library.

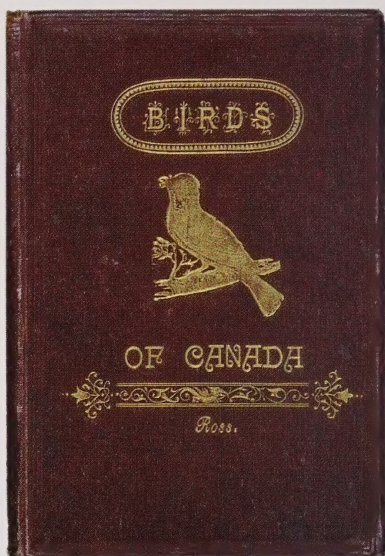
engraved by Bewick. In 1831 with William Rees and William (Tiger) Dunlop he set up the Literary and Philosophical Society of Upper Canada and in 1836 land was granted for a building to house a museum of his specimens. Unfortunately the society failed, perhaps because of Fothergill's continuing financial problems. Fothergill died penniless in 1840 and his collections went up in flames soon after. Little of his artistic work has survived and only a few sketches of birds. The sketch of the Red-breasted Nuthatch from his notebooks is reminiscent of eighteenth-century bird drawings with the tiny bird shown as greatly enlarged in comparison to the stump, but his notes indicate he did draw it from a living specimen on shipboard. Perhaps the foreground was an afterthought.

William Pope (1811-1902) came to America in 1834 intending to settle in the London District of Canada. He kept a journal of his travels in the United States and Canada. He was a sportsman as well as an artist and began painting birds in water-colour possibly influenced by a copy of Wilson or of Bonaparte's *American Ornithology* which he acquired soon after he arrived. He tried farming and eventually bought his own farm in 1860 near Vittoria in Norfolk county. His paintings which date from the 1830s to about 1875 vary in quality. He usually worked in water-colour and ink and left the background uncoloured. Ducks are shown on water, with the feet fully drawn although under water, a technique that had been used by George Edwards and Audubon among others in the eighteenth and early nineteenth centuries. The Ruffed Grouse dating from 1835 is one of his best compositions, showing the beautifully feathered birds in lively stances as they are about to step up on a log. A large collection of Pope's paintings is now held by the Toronto Reference Library.

The first illustrated bird book published in Canada appears to be Alexander M. Ross's *The Birds of Canada with Descriptions of their Habits, Food, Nests, Eggs, Times of Arrival and Departure* (Toronto: Henry Rowsell, 1871). Alexander Milton Ross (1832-1897) is best known for his work on the anti-slavery campaign in the United States at the time of the Civil War, but he was also an accomplished naturalist. The book is small and modestly illustrated in black and white. No illustrator or engraver is named. The title-page merely acknowledges 8 plates and 38 woodcuts, "expressly engraved for this work." In fact, all of the illustrations, whether on separate pages or in the text, are wood engravings but probably were printed from stereotype. About half were copied from Wilson's *American Ornithology* while another third, mainly water birds and birds of prey, were taken from Audubon's *Birds of America*, and a few others were from Yarrell. Almost all of the birds copied from Wilson and Audubon were reversed in the copying and printing processes, and it is possible that the publishers acquired plates or cuts of these birds from sources in the United States. Despite the copying, the illustrations seemed to have been

The binding for Alexander Milton Ross's The Birds of Canada 2nd ed. (1872)

carefully selected to go with the author's text and in many cases the names of the birds have been updated. Ross probably had no access to trained bird illustrators in Toronto or even more importantly collections from which an illustrator could work. In the second edition changes were made to a few of the illustrations, some being deleted and Wilson's [Common] Snipe added. The book was well received by the press as a useful popular work although Ernest Thompson Seton was very critical of it and noted in his autobiography that he had annotated his copy with extensive corrections.



An oddity in the early period was Henry G. Vennor's *Our Birds of Prey or the Eagles, Hawks and Owls of Canada* (Montreal: Dawson Brothers, 1876) which includes 30 albumen photographic prints of stuffed birds by the famous early Canadian photographer, William Notman. Vennor (1840-1884) was born in Montreal and studied geology and zoology at McGill. He wrote several papers on local birds, some of which were published in the *Canadian Naturalist and Geologist*, and formed a collection of bird and other specimens. He worked for the Geological Survey of Canada from 1865 to 1881, mainly as a geologist. In the introduction to his book (which he had published out of his own pocket), he gave considerable detail about the photography of the birds and justified certain odd positions of the specimens: for example to show the underside of a wing or to illustrate the feathering. He paid tribute to Notman "who entered heart and soul into the undertaking ... and has spared neither material nor labour in order to render the plates satisfactory and truthful to nature." He assured the reader that this was "not a mere exhibition of pretty photographs" but a work of some utility. In essence, the illustrations transport us into a museum setting and demonstrate the work of the taxidermists. They clearly show the limitations of contemporary photography in trying to capture all the different identifying features of birds and of course they lacked the essential element of colour. Vennor's publishing venture was a commercial failure, and he complained that the book was too expensive for Canada, — a comment that perhaps helps to explain the modest publications of illustrated bird books in Canada at the time. Later, around the turn of the century, colour-

printed photographic reproductions of stuffed birds against museum backdrops became the vogue and were used to illustrate some books such as Nellie Blantjan Doubleday's *Bird Neighbours* which appeared in an edition published by George N. Morang & Co. in Toronto in 1903 as well as the later work by George A. Cornish: *Nature Study Lessons for Teachers and Students: Bird Studies* (Toronto: Dominion Book Co., 1914).

In the 1880s and 1890s a few bird books for popular consumption with some illustrations were published in Toronto, Montreal, and Quebec. Charles Eusèbe Dionne (1846-1925) was born in Kamouraska, Quebec, and was largely self-educated. At the age of twenty-two he began to study natural history at night. In 1882 he became the curator of the museum at Laval University and reorganized and expanded its collections. His first publication was *Les Oiseaux du Canada* (1883) followed by a catalogue of Quebec birds in 1889 and *Les Oiseaux de la province de Québec* (Québec: Dussault & Proulx, 1906). All of the books were illustrated with small wood engravings and in the last book he also added 8 black and white plates made up of small reproductions of paintings, some by Fuertes. Dionne acknowledged that some of his "gravures" were taken from Elliot Coues's *Key to North American Birds*.

Some Canadian publishers were able to produce good chromolithography and Walter Raine (1861-1934) benefited from this when he came to publish his work on bird nests and eggs. Born in England, Raine moved to Canada as a youth and settled in Toronto. He became an authority on Canadian birds and eggs and made several trips to western Canada to gather eggs, forming a collection which later went to the Royal Ontario Museum. His *Bird-nesting in North-West Canada* was printed in Toronto by Hunter, Rose in 1892 and includes 6 three-colour plates of eggs and 13 monochrome or two-colour illustrations of birds and nests which he drew on stone himself.

A major influence on the illustrations for Canadian bird books at this time was Montague Chamberlain (1844-1924). Born in New Brunswick, he was one of the earliest native-born Canadian ornithologists, and

Shore birds' eggs from W. Raine's Bird-Nesting in North-West Canada (1892).



published on Canadian birds in both Canadian and American journals. In 1880 he joined the New Brunswick Natural History Society, assisted in building up its collection of birds, and established the Society's *Bulletin* in 1882. Later, from 1884 to 1887, he was associate editor of the *Auk*. Official support for science had been slow to develop in Canada and the first position for a naturalist/ornithologist was in fact in the Geological Survey of Canada. In 1882 this position was awarded to John Macoun who was primarily a botanist and a disappointed Chamberlain left Canada for the United States. There he was more successful, gaining the position of assistant secretary to the Harvard Corporation and becoming one of the founders of the American Ornithologists' Union in 1883. In 1891 he undertook the revision of Nuttall's *Manual*, producing *A Popular Handbook of the Ornithology of the United States and Canada* (1891) which appeared in several subsequent editions until 1919. Chamberlain updated Nuttall's accounts to use the nomenclature of the American Ornithologists' Union but retained much of his original text. The illustrations were all new for this work, and Chamberlain acknowledges "my fellow-worker, Ernest E. Thompson of Toronto" who did a large number of them. All but two of the 173 illustrations in the two volumes are wood engravings. In addition to Seton's plates, some illustrations were drawn by the American Edwin Sheppard and engraved by H.H. Nichols, but many other plates, particularly in the second volume on water birds and shore birds, were taken from Yarrell's *History of British Birds*. Seton signed his illustrations E.E. T. or Ernest E. Thompson at this time and his casual, rather scribbly style with considerable leafy backgrounds is always distinctive. His two coloured illustrations for the frontispieces of the two volumes are charming works reproduced by chromolithography.

In *The Birds of Ontario* (2nd ed.; Toronto: William Briggs, 1894), Thomas McIlwraith (1824-1903) made use of the same illustration sources as Chamberlain had. McIlwraith was born in Scotland but settled in Hamilton in 1853 and became a successful businessman. He is best known, however, for his extensive work as an ornithologist and collector in Ontario. Seton made use of his collection when he was first learning about birds and frequently visited McIlwraith. McIlwraith produced articles on the birds of Hamilton in the 1860s and in 1886 published the first edition of his *Birds of Ontario* which was not illustrated. By then he had listed 302 species for Ontario; this number increased to 319 in the second edition. This edition had 40 small line drawings of the most common birds, a selection of the same illustrations as those used by Chamberlain in his edition of Nuttall. Both Chamberlain and McIlwraith were founders of the American Ornithologists' Union and Chamberlain may have assisted him in getting illustrations for his book.

Ernest Thompson Seton (1860-1946), the famous naturalist, author, artist, and founder of the Woodcraft League in the United States, was born Ernest Evan

Thompson in Durham, England, and came to Canada as a child, living on a farm near Lindsay, Ontario. He later took the name Seton from a titled family from which he was descended and thus signed his name variously at different times in his life. The family moved to Toronto in 1870 where he attended the Ontario College of Art. He joined the Natural History Society of Toronto, founded in 1880 by Dr. William Brodie, and here he learned to keep a journal and to measure and mount specimens. In 1882 he went to Manitoba to take up land and spent some time in the Carberry area studying nature and painting birds and mammals. The next year he went to New York to seek some advancement for his art. He did bird illustrations for *Century* and other general magazines, was hired by the lithographic firm of Sacket, Wilhelm and Betzig, and eventually got a contract from Elliott Coues for 1,000 wildlife drawings



Ernest Thompson Seton's Blue Jay from his *Bird Portraits* (1901).

for the *Century Dictionary* (1889-91). He then began to work for Frank M. Chapman and illustrated several of his books on birds. Chapman was exceedingly pleased with his work and maintained that Seton's bird drawings had "a greater artistic and spiritual quality" than those of Fuertes (Wadland:93). Seton was hired as a naturalist for the Manitoba government and although Thomas McIlwraith advised him that his work was premature, his first publication, *Birds of Manitoba*, was issued by the Smithsonian Institution in 1891. Sadly, this work was not illustrated. Robert Ridgway, the curator of birds at the Smithsonian, was highly critical of the scientific aspects of the work which discouraged Seton from further work on birds and bird art. In the 1890s Seton was studying in

London and Paris, meeting artists like Joseph Wolf, and by about 1896-7 he had begun to create the animal art and literature for which he was to become famous. He did continue to do some bird illustration and research, however, including a few small line drawings in *Wild Animals I Have Known* (1898) and other books. For works to be produced in monochrome, he frequently contributed larger, more finished, gray wash studies as did other artists at the time. One of the best was *Bird Portraits*, with a text by Ralph Hoffmann, published in 1901. Some of Seton's illustrations in this work demonstrate his story-telling style and his anthropomorphism in relation to animals in his art.



The Ruddy and White-headed Ducks by Allan Brooks from J.C. Phillips A Natural History of the Ducks (1923-6) vol. 4 Plate 84. Courtesy of the Royal Ontario Museum Library.

CASE 8

*CANADIAN BIRD ILLUSTRATION IN THE
FIRST HALF OF THE TWENTIETH CENTURY*

DESPITE THE HARD WORK of individuals there was still little official support for ornithological studies in Canada in the early part of the twentieth century. Collections in the National Museum were woefully inadequate and scientists had to rely on private collections such as those of James H. Fleming in Toronto (which became the nucleus of the Royal Ontario Museum's ornithological collection in 1940), Thomas McIlwraith in Hamilton and W.E. Saunders in London. In fact John Macoun continued to rely on collections in American institutions to fill gaps. Both the Smithsonian in Washington and the Carnegie Museum in Pittsburgh funded many expeditions to the Canadian north and east in the first half of the twentieth century which resulted in reports (sometimes illustrated) published in the United States. In 1911 Percy A. Taverner (1875-1947) was appointed as ornithologist and curator to the Victoria Memorial Museum, now the Canadian Museum of Nature, in Ottawa, but in 1931, despite some support for publications, he was still having difficulty getting the museum to send expeditions for collecting to the north. Popular and educational works on birds were also slow in coming in Canada.

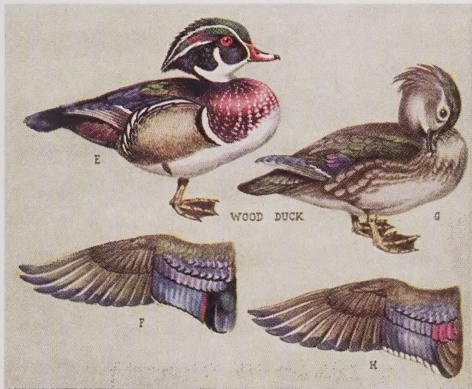
Allan Brooks (1869-1946) was one of the most important twentieth-century bird artists in North America and is considered by some the equal of Louis Agassiz Fuertes. He was born in India, educated in England, and emigrated with his family to Ontario in 1881; the family moved to British Columbia in 1887 and Brooks spent much of his life there, living mainly at Okanagan Landing. He was an avid hunter and collector and sent skins to many different museums in the United States and Canada. Largely self-taught, he began painting landscapes and wildlife at an early age and by the early part of the twentieth century he was sufficiently well known that he began to receive important commissions. In the beginning he worked mainly in water-colour, monochrome washes, and pencil, and pen and ink. Later he worked in gouache which he felt provided better reproductions for books. Certainly gouache produced a richness of colour for which he is noted. Brooks illustrated his first large bird book in 1909, — W.L. Dawson's *The Birds of Washington*, — but he was contributing to various journals like *Recreation* and *Bird-Lore* and to sporting magazines such as *Field and Stream* from 1897 on.

In 1912 Taverner began work on the first volume of a popular reference work to replace John Macoun's *Catalogue of Canadian birds* (1900-4) and he wanted Brooks, who by then had a considerable reputation, to do the illustrations. However World War I intervened and Brooks enlisted. *Birds of Eastern Canada* thus appeared in 1919 with all of the coloured illustrations done by Frank Hennessey (1894-1941); and the line drawings were executed by Taverner himself. The reviews of the books were mixed with regard to the illustrations, one person suggesting that some of the warblers were inaccurate, while Witmer Stone thought some were daring in their originality (Cranmer-Byng:106-7). Hennessey was associated with the Geological Survey of Canada from 1913 to 1915 and many of the illustrations he produced for Taverner were re-used for *Birds of Western Canada* (1926). Hennessey later moved out of bird art and into pastels and landscape art, which was more his forte.

After the war Taverner met with Brooks and was impressed by his immense knowledge of birds as well as his increasing artistic ability. At that time Brooks drew a chipping sparrow from memory for Taverner, although he had not seen one since 1914. Brooks agreed to do the new illustrations for the *Birds of Western Canada*. Unfortunately, as in the prior volume, the paintings were small and the photographic reproductions of them of very poor quality, considerably lessening their impact. Both the eastern and western books were combined in *Birds of Canada* (1934) with 35 new coloured illustrations by Brooks. The illustrations of Brooks and Hennessey were well-known to a whole generation of Canadian birders as they were re-used by the museum in many of its publications, including two small field guides produced by Taverner in 1939, and for ephemeral publications such as bird cards.

After the war, Brooks also contributed illustrations for W.L. Dawson's *Birds of California* (1921), J.C. Phillips' *A Natural History of Ducks* (1923-6), and, after Fuertes' sudden death, the final volume of E.H. Forbush's *Birds of Massachusetts* (1925-9). With Fuertes gone Brooks was much in demand and he contributed illustrations to Ralph Hoffmann's *Birds of the Pacific States* (1927), Florence Bailey's *Birds of New Mexico* (1928), John May's *Hawks of North America* (1935), and articles for the National Geographic Society. Brooks's early work is fairly static, consisting of single birds on branches, but when he began working with other artists he had to modify his style somewhat and became particularly good depicting backgrounds. His paintings have considerable atmosphere and a lyrical quality and his depiction of light is excellent. In his rendering of the bird, Brooks easily caught the "ghiz" or distinctive feel and pose of the bird. Some of his best illustrations were of water fowl and shore birds. His plates from a variety of books became standard references until North American field guides began to show all species in colour.

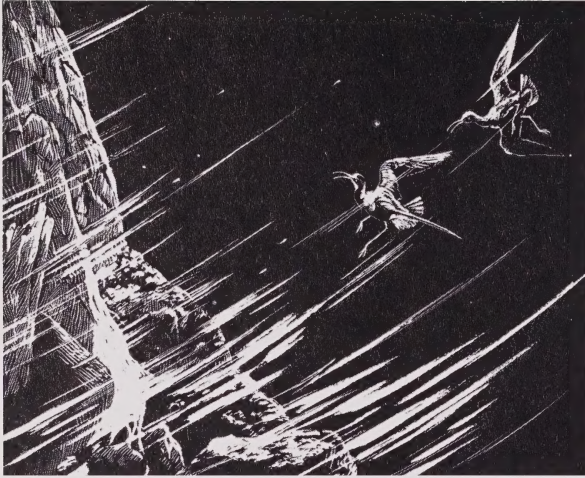
While Brooks worked on illustrations for American books, certain American artists were illustrating Canadian books. Roger Tory Peterson (1908-1996), for instance, illustrated Harold Peters' *Birds of Newfoundland* (1951) and these same illustrations were used in Robie Tufts' *Birds of Nova Scotia* (1961). Peterson, best known for his field guide and illustrations which will be discussed in the next section, was best at bird portraiture in the fully realistic manner needed for field guides and his illustrations appear in many other books. His more general work showing birds in landscapes has been criticized for a lack of integration of the bird with its background although the details of the birds themselves are exquisite. Hans Albert Hochbaum came to Canada from the United States in 1938 to take up the post of director at the Delta Waterfowl Research Station in Manitoba. He published and illustrated some of his own books including *The Canvasback on a Prairie Marsh* (1944), a classic study on water fowl biology, and *To Ride the Wind* (1973). Both works include evocative marsh landscapes with ducks flying or feeding.



The Wood Duck by Terry Shortt from F.H. Kortright's The Ducks, Geese and Swans of North America (1942).

Terence Michael (Terry) Shortt (1911-1986) was one of Canada's best museum artists and during much of his life the dean of American wildlife artists. He joined the staff of the Royal Ontario Museum in 1930 and eventually became chief of art and exhibits in the Life Sciences Department where he was responsible for dioramas and illustrations in museum publications. Shortt studied under Lemoine Fitzgerald at the Winnipeg School of Art from 1925 to 1927 and began

as an artist in the Fashion Art Department of Brigidens of Winnipeg Ltd. Shortt participated in many museum collecting expeditions all over the world, including trips to Mexico, the West Indies, East Africa, and eastern Asia. He travelled and painted extensively in northern Canada and was a member (along with Frederick Varley) of the *H.M.S. Nascopie* expedition in 1938. His illustrations appeared in more than 20 books and numerous articles including the coloured plates for *Ducks, Geese and Swans of North America* by Francis Kortright (1942) and the scratchboard drawings for L.L. Snyder's *Arctic Birds of Canada* (1957). As is evident in his own *Wild Birds of Canada and the Americas* (1977), many of his water-colours were studies of the heads, beaks, and feet of various birds. Perhaps his most delightful illustrations were



Scratchboard drawing by T. Shortt for Fred Bodsworth's Last of the Curlews (1955) p. 55.

the evocative scratchboard drawings done for Fred Bodsworth's story *The Last of the Curlews* (1955). In this story Bodsworth documents the possible extinction of the last breeding pair of Eskimo Curlews, victims of uncontrolled hunting, on their long migration route from South America to their breeding grounds in northern Canada. Shortt captures the feeling of this migration with the tiny birds tenaciously making their way through his lonely vistas of stark cliffs and the sea.

In the more recent period, artists began to issue illustrated books which were chiefly vehicles to show their artistic abilities. One such Canadian artist is J. Fenwick Lansdowne. Born in Hong Kong in 1937, but brought up in Victoria, Lansdowne's paintings (many in water-colour) have appeared in several books and magazines and have been sold in limited edition reprints. In his *Birds of the... Forest* series and *Birds of the West Coast* he offers a new type of ornithological illustration, one based on the combination of sensitive realism, meticulous detail and background work, and the benefits of modern high-quality colour printing. Lansdowne also illustrated S. Dillon Ripley's *Rails of the World* in 1977.

CONSERVATION AND THE EVOLUTION OF THE
FIELD GUIDE IN NORTH AMERICA

In March 1860, Henry David Thoreau wrote in his journal: "I get a very fair sight of a (hen-hawk) sailing overhead. What a perfectly regular and neat outline it presents! An easily recognized figure anywhere. Yet I never see it represented in books." (quoted in Lank: 72). This comment suggests how static bird illustration was in its first two centuries. In addition it shows that illustrators were largely catering to scientists and to lovers of beautiful nature books rather than to the educational needs of bird lovers at large. It was not until the conservation movement was born towards the end of the nineteenth century that ornithologists suddenly saw the importance of educational accounts so that the public could be persuaded to stop killing birds. Interest in bird-watching as opposed to bird-killing began to develop around the turn of the century and as the movement got under way binoculars for watching birds appeared. The modern bird-watcher was born. Soon there was a demand for small handy guides to bird identification and instructional accounts on how to watch and identify birds.

The need for such a practical guide in North America was not really met until Roger Tory Peterson published his *Field Guide to the Birds of Eastern North America* in 1934. The general style of this book became a classic and similar publications by other authors followed the pattern. But Peterson's work was not the first attempt at a guidebook and it is interesting to trace the evolution of this genre. There are several criteria that mark field guides as we have come to know and use them in the latter part of the twentieth century. First the guide must be small enough for use in the field, perhaps to go into a large pocket. The binding, whether hardback or paperback, must be sturdy enough to stand up to considerable wear and tear in the field. Generally, comparative illustrations of all birds for a particular area, drawn to scale, should be included with some or all of these in colour. There should be brief descriptions of all birds with field marks, songs, and habitat information. Visual methods of showing a variety of field marks to distinguish one bird from another and profiles of certain birds in flight have become essential. In addition bird-watchers have grown to expect other aids such as range maps and descriptions, and perhaps colour charts and information on how to find birds in certain areas.



"Perching Birds Marked with Red" from Frank Chapman's *Color Key to North American Birds* (1903) p. 177.

Several handbooks were produced in the latter part of the nineteenth century as essential sources for the increasing numbers of scientists working on North American birds. These of course were not field guides but in a sense they set the stage for the production of more popular books on bird identification. Elliott Coues (1842-1899), a leading American ornithologist, produced a *Key to North American Birds* (1872) which exemplified the scientific or taxonomic method for identifying species and was based on the method developed for botany. Coues himself described his book as a manual or textbook of North American ornithology and arranged his key first by number and position of toes in the bird, then by process of elimination, the analysis of the wings, beaks, and colour. Over the years and in the later editions, Coues considerably revised this key as he found that the first iteration of it did not work well. Nevertheless the key was mainly textual and depended on having a bird specimen in the hand and not on the fleeting glimpse of a living bird through binoculars. Robert Ridgway produced another aid for the scientist for record-keeping and publishing — his *Nomenclature of Colors for Naturalists and ... Ornithologists* (1886) — which greatly assisted in the proper scientific description of colours for birds. Tate suggests that one of the first real field guides was William J. Gordon's *Our Country's Birds and How to Know Them* published in London in 1892. Every British bird is illustrated on

plates containing approximately a dozen birds each, and these are roughly grouped by related species and families. However, birds were not named on the plates but numbered to correspond to one of the lists in the book, necessitating laborious checking. There are many separate chapters on aspects of the birds including an identification guide, but once again the latter would only work with a species in the hand. Another complicated table listed birds according to size.

In the United States, Frank Chapman (1864-1945), curator of ornithology and mammalogy at the American Museum of Natural History in New York, was beginning his publishing career with a series of books to assist the layman as well as

the scientist with bird identification. His first book was *Handbook of Birds of Eastern North America* which appeared in 1895. As the title indicates the book included keys to species (one devised by Ernest Thompson Seton), descriptions of plumages, nests, and eggs, and chapters on learning how to identify birds and how to collect and preserve them. The book, however, had only one colour plate by Ernest Thompson Seton. The rest were black and white photographs of habitat groups or small line drawings with comparisons of bills or heads or, in one case, comparative photographs of heads of stuffed ducks. A colour chart for describing colours of birds was also included. The book was large, and not really meant to be taken into the field. As a handbook, however, it was popular and went through many revisions to 1940. Two other authors attempted field guides before 1900. Austin C. Apgar published his *Birds of the United States ... a Manual for the Identification of Species in the Hand or in the Bush* in 1898. It was a small compact book with purposely short descriptions of the birds, and each bird was illustrated on the same page. The black and white illustrations were by his daughter, Ada Apgar, and Richard B. Farley. Apgar included textual taxonomic keys to identification but also offered a key to be used in the field based on five groups of sizes. Again, however, using this key was a lengthy process. Edward Knobel tried a different tack in his *Field Key to the Land Birds* (1899). The handy-sized guide included nine colour plates of birds grouped according to size, e.g. "birds the size of the robin", "birds smaller than a sparrow," etc. Birds the size of a sparrow were further divided into those with "bright plumage", those "not speckled", etc. Birds on each plate were on the same scale, but of course the artist had to reduce the size of the larger birds with respect to the smaller ones. Once again these birds were not named but numbered, and a key had to be used. Neither of the last two books are well known perhaps because the illustrations were only very basic and the method of identification was still not sufficiently easy to use.

These works were supplanted quickly by two works in particular. These were Chapman's *Color Key to North American Birds* (1903) and Chester Reed's *Bird Guide* series (1905-6). Chapman's book was intended to assist the beginner in field identification and this was done by including about 721 drawings of birds by Chester Reed arranged according to the key colour of the bird. For instance "Perching Birds Marked with Red" groups together birds from different families in which red is the key colour and in the illustration only those parts of the bird were printed in colour. The birds were shown on pages beside brief texts which also included information on ranges and songs. Unfortunately some birds have more than one key colour, so that the book could not have been that easy to use and it was larger and heavier than a modern field guide. Two years later Chester Reed (1876-1912) came out with the first edition of his own bird guides, truly pocket size works, smaller than four by six

inches, with each page devoted to one bird and including a coloured illustration. *Bird Guide Part I: Water and Game Birds East of the Rockies* came first in 1905 followed by *Bird Guide Part 2: Land Birds East of the Rockies* in 1906. Later a guide to western birds was published. The illustrations, usually of a male and female, were small and unfortunately very poorly printed with frequent problems in colour registration. Nevertheless the books were essentially field guides and as such were very popular. They went into many editions and even appeared with a Canadian imprint by the Musson Book Company of Toronto. Later editions were somewhat improved, including more birds with better illustrations of each and a field key at the end based on colours. Most importantly however it was these bird guides that Roger Tory Peterson used as a boy which prompted him to develop a whole new and definitive style of field guide.

Roger Tory Peterson (1908-1996), surely the most famous bird watcher/ornithologist/artist of the twentieth century was born in Jamestown, New York, and early on developed a passion for birds. He began using Chester Reed's bird guides but felt frustrated because they did not include all birds or provide sufficient text to explain different plumages. In 1925 he exhibited some of his bird art at a meeting of the American Ornithologists' Union in New York and a year later he went to New York to study art and join the ornithological community based at the American Museum of Natural History. He studied at the Art Students League in 1927-8 and at the National Academy of Design from 1929 to 1931. By 1930 he had so impressed his fellow birders with his knowledge and artistic abilities that they were urging him to produce a bird book that would share everything he had learned about bird identification. Peterson indicates in the foreword to his book that he



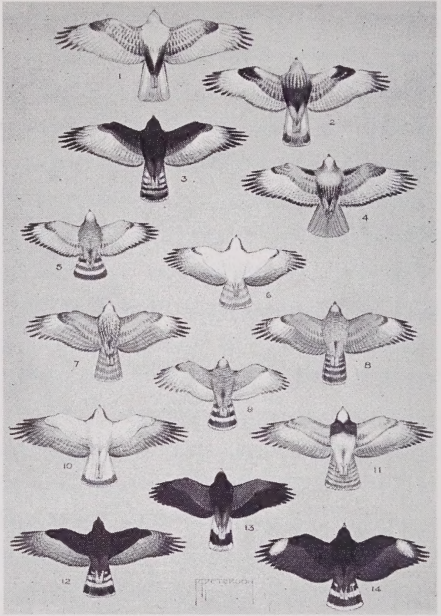
Roger Tory Peterson's frontispiece from his first edition of Field Guide to the Birds (1934).

was influenced in his technique by Ernest Thompson Seton's *Two Little Savages* (1903) in which the hero Yan noticed that in looking at ducks in the distance all had different blotches or streaks that identified them and thought that if he could put them down on paper he could learn to recognize them. Seton therefore had included two pattern charts of "river ducks" and "sea ducks" in the book accompanied by brief diagnostic descriptions. Seton's earliest "pattern chart" was one of a variety of birds drawn by him in 1881-2; he later published a comparative chart of hawks and owls in a paper, "The Directive Coloration of Birds" in the *Auk* (Volume 14, 1897) and used the same chart with a new text in "The Recognition Marks of Birds" in *Bird-Lore* (November 1901). Peterson felt that this simple method did more than many other books of the time to point out differences and he also felt that other really distinctive characteristics had been overlooked by authors and artists. So he set out to remedy this situation in a small and handy guide.

Working in Boston over the next four years Peterson created a series of simplified plates of all the birds of eastern North America showing the key field marks. His innovation was to show simple comparative drawings of families of birds and to indicate diagnostic marks so that the bird watcher could see quickly what to look for. The brief text further emphasized the marks and included information on behaviour and colours useful for identification. *A Field Guide to the Birds* was finally published by Houghton Mifflin (having been rejected by four other publishers) in 1934. It included only 16 plates, four of which were in colour. Several plates were comparative charts of birds such as hawks in flight. In these cases Peterson maintained that a simple contour and pattern were more important than colour and they were shown in gray washes. The book was such a success that the first print run of two thousand copies was sold out in a week and by now several million copies of it have been sold. The guide was revised in 1939, 1947, and 1980 to include more information and frequently with fully redone plates. Peterson found it necessary to increase the text in the 1939 edition to include more information on song, range, and exact size of birds, and the number of plates was doubled. In the 1947 edition he introduced his popular plates on "Confusing fall warblers", and the endpapers with roadside and flight silhouettes, and he redrew most of the plates to increase the size of the birds. It is interesting to note that the use of arrows as a key part of Peterson's method appears to have been anticipated on the cover of Henry Hill Collins's pamphlet, *Field Marks of All Birds Easily Confused Occurring Annually in Northeastern North America*, published in 1931. Whether Peterson was aware of this publication or not, his system was more fully developed. The Peterson field guide method was so popular that he used it for bird books in other parts of the world and expanded it into a series of field guides for other areas of natural history such as flowers, mammals, and butterflies.

Hawks as seen from below by Roger Tory Peterson in J.B. May's The Hawks of North America (1935).

As one author has noted, the impact of the field guide system was profound for illustration, for scientific publishing and for conservation: "Today, with a choice of field guides for every continent and many devoted to a single country or region, it is worth remembering that these books represent the most recent and rapidly evolving form of ornithological illustration" (Pasquier & Farrand: 216). The field guide presented another book form in the ornithology world for which



good illustration was essential. The enormous number of these field guides for regions and specific bird families has resulted in today's flood of well-illustrated works printed by the best of modern colour printing methods. Jean Anker, writing in 1936, felt that "the perfection of photographic pictures and their increasing employment as a basis for the pictorial material in ornithological works has in some degree thrown hand-made pictures into the shade." However, the field guide has demonstrated that there will always be an important role for artists in depicting birds because only they can show both a full range of details and aesthetic qualities that photographs can seldom capture.

SELECTED BIBLIOGRAPHY

- Ainley, Marianne G. "From Natural History to Avian Biology: Canadian Ornithology 1860-1950". Ph.D thesis, McGill University, 1985
- Allen, Elsa G. *The History of American Ornithology before Audubon* (Philadelphia, Pa: American Philosophical Society, 1951; reprinted King of Prussia, Pa.: W. Graham Arader III, 1979)
- Anker, Jean. *Bird Books and Bird Art* (New York: Arno Press, 1974 [c1938])
- Barnhill, Georgia B. "The Publication of Illustrated Natural Histories in Philadelphia, 1800-1850" in Gerald Ward ed. *The American Illustrated Book in the Nineteenth Century* (Winterthur, Del.: Henry Francis du Pont Winterthur Museum, 1987), 53-88
- Barrett, H.B. *The 19th-Century Journals and Paintings of William Pope* (Toronto: M.F. Fehely Publishers, 1976)
- Cranmer-Byng, John L. *A Life with Birds: Percy A. Taverner, Canadian Ornithologist, 1875-1947* (Ottawa: Ottawa Field-Naturalists Club, 1996). (*Canadian Field-Naturalist* vol. 110 (no. 1, 1996)
- Egerton, Frank N. "Notes Chiefly on the Plates of Wilson's American Ornithology" *Journal of the Society for the Bibliography of Natural History*, 4 (no. 2, 1963):125-37
- Gibbons, Felton and Deborah Strom. *Neighbours to the Birds: A History of Birdwatching in America*. (New York, London: W.W. Norton & Co., 1988)
- Graustein, Jeannette E. *Thomas Nuttall Naturalist: Explorations in America 1808-1841* (Cambridge, Mass.: Harvard University Press, 1967)
- Jackson, Christine. *Bird Etchings: the Illustrators and Their Books, 1655-1855* (Ithaca & London: Cornell University Press, 1985)
- _____. *Bird Illustrators: Some Artists in Early Lithography* (London: Witherby, 1975)
- _____. *Wood Engravings of Birds* (London: Witherby, 1978)
- Jackson, Christine, & Maureen Lambourne. "Bayfield-John Gould's unknown colourist" *Archives of Natural History* 17 (no. 2, 1990):189-200
- Knight, David. "William Swainson: Naturalist, Author and Illustrator" *Archives of Natural History* 13 (no. 3, 1986):275-90
- _____. *Zoological Illustration: An Essay Towards a History of Printed Zoological Pictures* (Folkestone, Kent: Dawson; Hamden, Ct.: Archon Books, 1977)
- Laing, Hamilton M. *Allan Brooks: Artist Naturalist*. (Victoria, British Columbia: Ministry of Provincial Secretary and Government Services, 1979)
- Lambourne, Maureen. *The Art of Bird Illustration* (London: Quarto Publishing; Secaucus, N.J.: Wellfleet Press, 1990)
- Lank, David. "Natural History Illustration" in Anna H. Perrault ed. *Nature Classics: a Catalogue of the E.A. McIlbenny Natural History Collection at Louisiana State University* (Baton Rouge, La.: 1987): 3-75

- Lysaght, A.M. *Joseph Banks in Newfoundland and Labrador, 1766: his Diary, Manuscripts and Collections*. (Berkeley and Los Angeles: University of California Press, 1971)
- McAtee, W.L. "The North American Birds of George Edwards' *Journal of the Society for the Bibliography of Natural History* 2 (6, Oct. 1950): 194-205
- McLean, Ruari & Antonia. *Benjamin Fawcett Engraver and Colour Printer* (Aldershot: Scolar Press, 1988)
- McLean, Ruari. *Victorian Book Design and Colour Printing* (London: Faber & Faber, 1972)
- Mengel, Robert M. "Beauty and the Beast: Natural History and Art" *Living Bird* 18th annual vol. (1979-80): 1-70
- . *A Catalogue of the Ellis Collection of Ornithological Books in the University of Kansas Libraries* (Lawrence, Ka., 1972-) 2 vols
- Nissen, Claus. *Die Illustrierten Vogelbücher: Ihre Geschichte und Bibliographie*. (Stuttgart: Hiersemann Verlag, 1953)
- Pasquier, Roger and John Farrand. *Masterpieces of Bird Art: 700 years of Ornithological Illustration* (New York: Abbeville Press, 1991)
- Peterman, Michael. "Editor's Introduction" in Catharine Parr Traill *The Backwoods of Canada* (Ottawa: Carleton University Press, 1997)
- Sauer, Gordon. "John Gould in America" *Contributions to the History of North American Natural History* (London: Society for the Bibliography of Natural History, 1983): 51-8
- Seton, Ernest Thompson. *Trail of an Artist-Naturalist* (New York: Scribner's, 1940)
- Simpson, Marcus B. "Artistic Sources for John Abbot's Watercolor Drawings of American Birds" *Archives of Natural History* 20 (2:1993): 197-212
- Sitwell, Sacheverell, Handasyde Buchanan, and James Fisher. *Fine Bird Books 1700-1900* (New York: Atlantic Monthly Press, 1990)
- Sutton, George Miksch "Fifty Years Progress in American Bird-Art" in *Fifty years' Progress of American Ornithology 1883-1933*. Rev. ed. (Lancaster, Pa.: American Ornithologists Union, 1933) 181-197
- Tyler, Ronnie C. *Audubon's Great National Work: the Royal Octavo Edition of Birds of America* (Austin: University of Texas Press, 1993)
- Wadland, John Henry. *Ernest Thompson Seton: Man in Nature and the Progressive Era 1880-1915* (New York: Arno Press, 1978)
- Wakeman, Geoffrey and Gavin Bridson. *A Guide to Nineteenth Century Colour Printers* (Loughborough: The Plough Press, 1975)
- Welker, Robert Henry. *Birds and Men, American Birds in Science, Art, Literature and Conservation 1800-1900* (Cambridge, Mass.: Harvard University Press, 1955)
- Wood, Casey A. *An Introduction to the Literature of Vertebrate Zoology, Based Chiefly on the Titles in the Blacker Library of Zoology, The Emma Shearer Wood Library of Ornithology...McGill University, Montreal* ([Oxford]: Oxford University Press; London: Humphrey Milford, 1931)
- Zimmer, John Todd. *Catalogue of the Edward E. Ayer Ornithological Library* (Chicago: Field Museum of Natural History, 1926; reprinted Arno Press, 1974)

